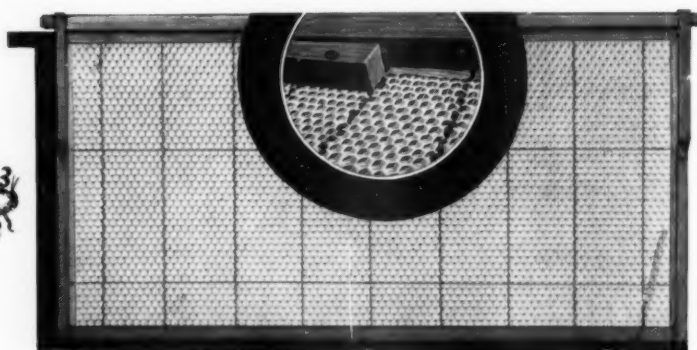




# DADANT'S *Crimp-Wire* FOUNDATION



## The Hooks WILL HOLD

You can't pull them out. Laboratory tested for holding power, these hooks, in high heat and with a fifty-pound load, never did pull out. They are steel hooks, bent exactly by special machines that took years to produce. They are your extra guarantee of safety for the heavy demands of today's beekeeping. They hold your combs rigidly in the frames giving you extra insurance for a lifetime of use.

## Gives You LIFETIME COMBS

I was one of the first to use Dadant's Crimp-wired Foundation and I soon found the combs sometimes pulled out at the top bar. I put the firm hooks in by bending the extended wires by hand and I told the Dadants about it. It took a long time for them to do the job by machine but they did it. I got some of the first of the foundation with hooks and it has always given me combs you just cannot beat.

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Hamilton, Illinois

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*The Preference of Leading Honey Producers*

**Your Choice Of**

**DADANT'S IMPROVED STARLINES or YORK'S QUALITY BRED ITALIANS**

Fumadil B fed queen grafting yards, queen mating yards, and package bees at no extra cost.

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QUANTITY	1-24	25-99	100 up
2-lb. pkg. ....	\$4.00	\$3.75	\$3.50
3-lb. pkg. ....	5.00	4.75	4.50
4-lb. pkg. ....	6.00	5.75	5.50
5-lb. pkg. ....	7.00	6.75	6.50
Queens .....	1.35	1.25	1.15
FOR DADANT'S IMPROVED STARLINES — add 25c each additional			
FOR TESTED QUEENS — add \$1.00 each additional			
FOR QUEENLESS PACKAGES deduct \$1.00 each			



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Shipments are made FOB Jesup by express, parcel post, or your truck. Bees are certified bees from our own apiaries, state registered and state inspected. If convenient, small orders cash, and larger orders \$1.00 deposit per package with balance payable two weeks prior to shipment.

**YORK BEE COMPANY**

**Jesup, Georgia**

(The Universal Apiaries)

P.O. Box 300

412 W. Orange Street

Phones 3522, 3320

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### THE AMERICAN BEE JOURNAL HAMILTON, ILLINOIS

Vol. 96, No. 3 March, 1956

Editor—G. H. Cale  
Associate Editors—M. G. Dadant,  
Roy A. Grout  
Managing Editor—Adelaide Larson

Published monthly at Hamilton, Illinois. Entered as second-class matter at the Post Office, Hamilton, Ill. In the United States, Canada and Mexico, \$2.00 a year; two years \$3.50; three years \$5.00. Foreign \$2.50 a year; two years \$4.50; three years \$6.50. Subscription stopped at expiration date printed on wrapper. Available on micro-film at moderate prices by writing to University Microfilms, Ann Arbor, Michigan.

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**OR**

**JOHNSON DOVETAILING FIXTURE**

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The only worthwhile Queen Excluder on the market

- Accurate spacing
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- More honey production
- No wood. No Burr combs
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Queens raised from heavy-producing stock.

Health Certificate

BEES—2-lbs...\$3.75 3-lbs...\$4.75

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## For the Best

in

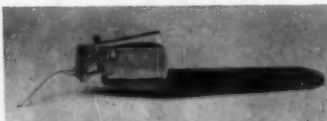
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Any of the Following Members  
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\$3.60 (including extra rustless tongue).

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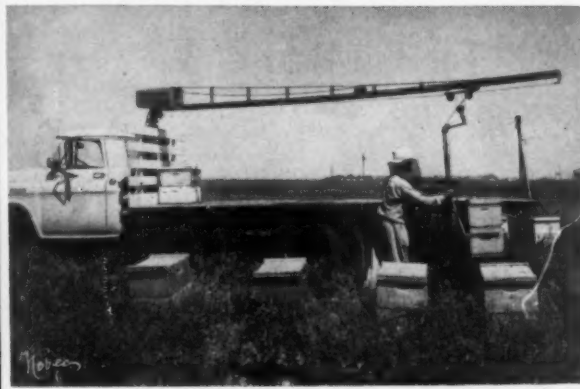
46 years' experience

	1-9	10-50	51-up
2-lb. pkg. with queen	\$4.00	\$3.75	\$3.50
3-lb. pkg. with queen	5.00	4.75	4.50
4-lb. pkg. with queen	6.00	5.75	5.50
5-lb. pkg. with queen	7.00	6.75	6.50
Queens	1.35	1.25	1.15

Our strain are good producers, gentle to handle and build up quickly.

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**WE HAVE TO OFFER YOU—YOUNG HIGHEST PRIME QUALITY PACKAGE BEES AND QUEENS**  
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Orders booked 25% down payment, to confirm and reserve your shipping date, balance due 10 days before shipment.

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1 - 24	\$1.35	\$4.00	\$5.00	\$6.00	\$8.00
25 - 99	1.25	3.75	4.70	5.65	6.60
100 - 499	1.15	3.50	4.40	5.30	6.20

Queens Postpaid — Airmailed — Clipped — No Extra Cost

REFERENCE—Bank of Cottonwood, Cottonwood, Alabama

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4. That it pays for itself in time saved.

**The Push Button Bee Smoker**

\*Trademark

Stewart Taylor, Camargo, Illinois

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## but SELL HONEY



H-A jars will help you do it. They're designed for sales



5 lb. Pail

**HAZEL-ATLAS GLASS  
COMPANY**

WHEELING, W. VA.



5 lb. Comb



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FOR 1956

Gentle bees, less swarming, good producers, health certificate and live arrival guaranteed — just a few things you get when your requirements are sent to me.

No extra charges on orders booked in advance.

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3 lb. pkg. w/q	4.60	4.30	4.00
4 lb. pkg. w/q	5.50	5.15	4.80
5 lb. pkg. w/q	6.40	6.00	5.60
Queens	1.20	1.10	1.00

**FARRIS HOMAN**

Shannon, Miss.

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QUANTITY	1-24	25-99	100 up
2-lb. pkg. with queen	\$3.75	\$3.50	\$3.25
3-lb. pkg. with queen	4.75	4.50	4.25
4-lb. pkg. with queen	5.75	5.50	5.25
5-lb. pkg. with queen	6.75	6.50	6.25
Queens	1.25	1.15	1.00

**GOLD LEAF APIARIES**

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ITALIAN AND  
CAUCASIAN  
PACKAGE BEES  
AND QUEENS

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### **ITALIANS OR CAUCASIANS**

We have had many very favorable reports on our bees the past season. We expect to put forth the same effort to make them even better this season. We are prepared to load trucks, ship by express or parcel post, whichever suits you best. Get your bees from a firm that has made the production of bees and queens a special business for over forty years. **EXPERIENCE PAYS.** Remember too that you get added protection from Nosema disease as we feed Fumidil B in our queen yards.

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1 - 24	\$1.35	\$4.00	\$5.00	\$6.00	\$7.00
25 - 99	1.25	3.75	4.70	5.65	6.60
100 - 499	1.15	3.50	4.40	5.30	6.20

Queens Postpaid — Airmailed — Clipped — No Extra Cost

Tested queens.....\$2.50 each

Queenless package — Deduct Price of Queen

Packages F. O. B. Shipping Point

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**MAYHEW, MISSISSIPPI**





Caucasian  
and  
Carniolan



Start the New Year with young queens and be assured of plenty of bees when honeyflow starts. Carniolans and Caucasian build up rapidly, build white combs and are gentler of all races of bees. Untested queens \$1.30 each air mailed. \$2.00 to foreign countries. Discount on quantity. Ready Feb. 15th. Packages later, inquire.

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4-lb. pkg. w/q 5.20 5.00  
5-lb. pkg. w/q 6.15 6.00  
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Extra Good honey Gatherers. Please  
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New Brockton, Ala.

**FRAMEWORK Strain ITALIANS**  
Genetically bred for six outstanding,  
desirable factors. All Breeder queens  
progeny-tested.

	1-24	25-99	100-up
QUEENS	\$1.00	\$ .95	\$ .90
2-lb. pkg. w/q	3.15	3.00	2.90
3-lb. pkg. w/q	4.15	4.00	3.90

**BOB GALE'S APIARIES**  
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FRAMESPACERS

The finest thing ever offered beekeepers.  
See your dealer or write.

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2 lb. with queen	\$3.00
3 lb. with queen	4.00
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Extra queens \$1.00 each	
I will try to satisfy you	

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Rt. 3, Tupelo, Miss.



Reg. U.S.  
Pat. Off.

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without adding more colonies or doing more work. By  
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trial.

Now booking orders for Packages and Queens  
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Honey Processing and Packing Plant  
doing a prosperous business since 1925  
Sale necessary, at a sacrifice, due to  
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**Choose Labels Wisely**

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#### Yellow Italian Bees and Queens

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Young laying queens, 1 to 50—\$1.00  
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**We Work Your Beeswax  
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**For Quality Merchandise**

**For Direct Service**

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Honey sections our specialty.

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**PACKAGE BEES**  
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### Prices with Regular Queens

	2-lb. with Queen	3-lb. with queen
1 - 24	\$4.00 each	\$5.00 each
25 - 99	3.75 each	4.75 each
100 or more	3.50 each	4.50 each

For Island Hybrid Queens add 25c each

**"They Produce"**

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## Comb Packages

TOPS in production. Field tests prove no other type package will build up as quickly into strong colonies. Full crops are often obtained the first year.

TOPS in value received. Two full pounds of young bees, a purely mated young queen, and four (4) fully drawn standard size brood combs containing additional thousands of developing young brood surrounded by natural POLLEN and Nectar; all are included in each COMB PACKAGE. One new standard 10-frame hive body is supplied in the form of a shipping cage, screened top and bottom, and containing two (2) complete comb packages separated by a removable partition.

TOPS in carefully selected and controlled breeding stock. Being large scale commercial honey producers ourselves, we fully appreciate the desirable characteristics necessary for maximum honey production.

Pure three banded ITALIANS or pure grey CAUCASIANS are available. Shipments begin April 1st. Full installation and handling instructions plus Government certificate of disease free inspection accompany each shipment. Live delivery guaranteed.

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ONLY IN MULTIPLES OF TWO.**

Two (2) complete comb packages as described, packed in one hive body .....\$17.00  
Ten (10) or more, two for ..... 15.00  
Terms: 1/3 with order, balance 10 days before shipment.

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HIGGINSVILLE, MO.



## The Business Beekeeper

# Package Bees By Air Express

by J. E. Eckert

The shipment of package bees by air express involves several factors that are not common to shipments by truck or by railway express. The problem of providing the bees with a suitable food source is one of the primary considerations. Several years ago one of the first sizable air shipments of package bees was started from Sacramento for points north. It was a trial shipment and its success was watched with much interest by shippers and buyers of package bees as well as by the airplane companies.

The plane had to be loaded by mid-afternoon and since the shipment involved several hundred packages, this required their preparation and delivery to Sacramento from a considerable distance. Many of the packages were shaken the day before, held overnight in a cool place and then protected from the day's heat until they were loaded. As I recall, fans were used to circulate the air in the plane while the packages were

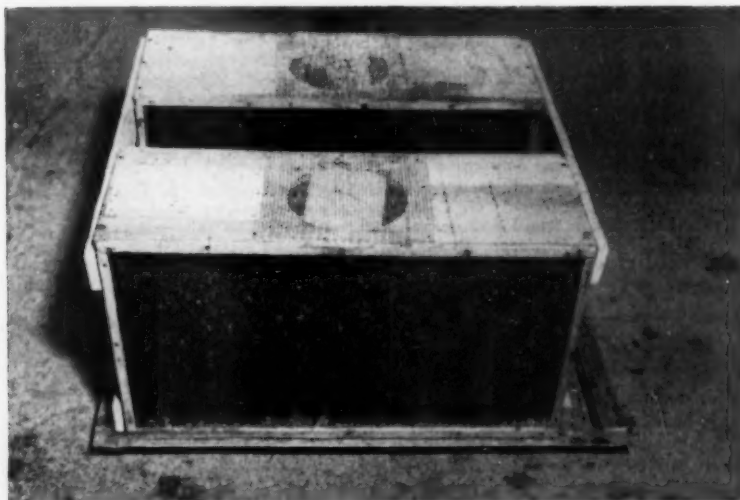
being loaded. Special precautions were taken to prevent the shipping cages from shifting during the journey.

The shipping cages consisted of the usual California screened cage with two, three or four pounds of bees and one or two queens in each cage. The feeder cans contained sugar sirup and were number 2½ tins with hermetically sealed lids having Indianhead cloth fastened over a central opening that was ¾ inch in diameter. There was some discussion about loading the cages upside down, because of a possible leakage of sirup, but all cages were loaded with the feeder openings down.

The centrifugal pull exerted by the sudden rise of the plane caused much of the sirup to be forced out of the containers, resulting in about 1,200 pounds of sirup being released to drip over several states and to foul up the floor of the plane. This was lesson number one that should never

be forgotten. We were told that it was quite expensive to steam clean the plane to eliminate the sticky sirup.

The bees arrived in good condition, because they had been well fed after they had been packaged, and many of them were installed in hives 24 hours after they had been shaken. This speed of installation posed another problem that had to be considered—that of the possible transmission of American foulbrood in case any of the bees had been shaken from a diseased colony. (Package bee colonies are inspected immediately before they are shaken but it is conceivable that inspection might not indicate a colony that is lightly infected.) If bees have an opportunity of consuming the honey they have in their stomachs when they are packaged before they are placed on drawn combs, the possibility of transferring AFB is very slight. The usual period of three to four days which it takes to package, deliver and to install bees on drawn combs by the common methods of transportation practically eliminates the possibility of transmitting AFB by the bees so involved. With our knowledge of chemotherapy at the present time, the buyer can be absolutely sure of having disease-free colonies from package bees by dissolving one-half gram of sodium sulfathiazole in each gallon of sirup fed to the bees to get them started. One teaspoon of TM-25 in each gallon of sirup, fed at weekly intervals, will not only safeguard against AFB but will also eliminate or greatly reduce the incidence of European foulbrood if the beekeeper is in EFB territory. Consequently, when the principles of chemotherapy are understood and used, packages shipped by plane can be installed immediately on arrival and not held for a three-day quarantine period to be absolutely safe.



Standard California shipping cages crated together for air express

Since bees can survive for at least three days on a stomachful of honey or heavy sugar sirup, package bees can be shipped by plane without feeder tins in the shipping cages if they are fed until they will take no more sirup before they are shipped and if they are delivered within three days and fed immediately thereafter or if they are fed enroute. This involves considerable organization work on the part of the shipper and the transportation company. The buyer should pick up his packages on arrival and give them proper care. This is more important by air transportation than by rail express because the facilities and know-how for taking care of package bees are not as good at airfields as at railroad stations. Airfields may be at a considerable distance from the buyer and sometimes might involve the reloading of the packages on rail express cars to complete the journey. This would necessitate having the bees fed at the air terminal. Such combination shipments are not often resorted to and are seldom practical.

We recently shipped two experimental packages to Kasetsart University, Bangkok, Thailand, and four to the Philippines by air express and took advantage of some of the experiences gleaned from past shipments.

The packages to Bangkok were started from San Francisco on the night of the sixth of July and arrived in Bangkok on the afternoon of the ninth. The bees were transferred to hives within an hour after their arrival. Only three or four bees were dead on the bottoms of the two cages.

Since the shipping rates for such long distances are expensive, great care must be used to get the bees delivered in good condition. The bees were shaken from the top stories of normal two- and three-story colonies in early morning when most of the field bees were in the lower story or out in the field. The bees were fed immediately and were kept in a cool place until they were taken to the air terminal. A two-pound size section of comb (the frame of which

was  $4\frac{1}{4} \times 7\frac{1}{4}$  inches) was included in each package to provide clustering support and for the bees to use as food receptacles. All of the combs had some honey in them, produced from disease-free colonies. The queens were caged securely in 2-hole or 3-hole cages, without attendants, and hung next to the combs. One-half of a cellulose sponge was wired to an 8-mesh galvanized screen which was tacked over the top hole in the shipping cage. This sponge was saturated several times with heavy sugar sirup up to the time the bees were delivered to the Pan-American World Airways in San Francisco so it was assured that the bees were well filled with sugar sirup sufficient for at least a three-day journey. The honey in the comb would have carried them for an additional two or three day period.

The various export and import papers were attached to each shipment together with the necessary permits and declarations of inspection and freedom from disease. Further, the handlers were advised to wet the sponges at each terminal with water or preferably with sugar sirup and to protect the bees from the ill effects of excessive cold, heat or fumigation.

The wire screen over the opening of the cage made it easy for the handlers to pour water or sirup onto the sponge and such instructions were included on the bill of lading. The packages were delivered immediately on arrival at their destinations and we were advised that all of the bees in each package arrived in excellent condition, although the sponges were dry on arrival.

It is recognized that many countries forbid the importation of bees on comb but, when permitted, the bees will arrive in better condition if they have access to honey and drawn comb in the shipping cage. There will be absolutely no danger of transmitting AFB if the colonies are fed two or three 10-pound tins of sirup in which either one-half gram of sodium sulfathiazole or one teaspoon of terramycin (TM-25) is dissolved in each gallon of sirup, after the bees are installed. The sponges used in these foreign shipments cost less and weighed less than tin containers full of sirup. Medicated sirup was used in feeding the bees and in moistening the sponges before shipment in order to check the effect on the bees.

Davis, California

## RESEARCH FELLOWSHIP

DEPARTMENT OF APICULTURE  
ONTARIO AGRICULTURAL COLLEGE, GUELPH

### \$1500 Plus Tuition

#### PROJECT

#### A CHEMICAL AND BIOLOGICAL INVESTIGATION OF ROYAL JELLY (A SECRETION OF THE PHARYNGEAL GLANDS OF THE WORKER BEE)

The grant is open to graduates with a Bachelor of Science degree or its equivalent from any recognized university or college. Training in chemistry and biology or biochemistry and physiology is desirable; fluency in the English language is essential.

The recipient will be free to devote full time to research and course work leading to the degree of Master of Science in Agriculture (University of Toronto). Financial support will be in the amount of \$1500 plus tuition (equivalent to \$1750) for a 12-month period beginning at any time between May 1 and October 1, 1956. Should the candidate be unable to complete his research in 12 months, provision will be made for extension of financial aid.

Applications should be accompanied by a transcript (in duplicate) of the undergraduate academic record, letters of reference from two faculty members, and a small photograph. These should be sent not later than April 1, 1956, to Professor G. F. Townsend, Head Apiculture Department, Ontario Agricultural College, Guelph, Ontario, Canada.

### For the Commercial Beekeeper

Any beekeeper who keeps bees for profit from honey, or pollination, or bee and queen production, to our notion, is a commercial beekeeper, whether he has few bees or many. There are many commercial beekeepers by this measure but only a few of them are full time men whose principal occupation is beekeeping.

If you consider yourself "commercial," and you have a story to tell of importance to your industry, or to other beekeepers, don't neglect the chance to help. WRITE. You don't have to be a scholar and you don't have to be an English expert. All you have to do is write. We do the rest.



# Can We Standardize Rentals?

by Robert M. Mead

It is doubtful if anyone connected with beekeeping or with agriculture in general questions the need for pollination, especially for many highly specialized crops. Everyone connected with this business however should at some time or other question the manner in which pollination service is at present being conducted. Is the beekeeper being paid adequately for his services? Is the grower getting what he is paying for? If you are now renting bees what do you consider a minimum standard of colony strength?

As Vermont state bee inspector I have had a chance to see a great deal of the pollination business. I don't know how it works in your state but in this one it is often a mess and we are in danger of making a bigger mess of it as time goes on. I don't see any reason for sugar-coating the facts about either beekeepers or the men who rent from them. We have some considerate and thoughtful men on both sides of the fence. We have some abuses and because abuses are what the public eventually hears about an industry, I am going to list those abuses and discuss them.

At present, in Vermont, we are chiefly concerned with orchard pollination as it involves the greatest number of colonies. We are becoming involved in trefoil pollination and in a few years more colonies may be needed for that purpose than have ever been needed for the orchard business.

It is only fair to say that the bulk of the orchard business is conducted in a manner satisfactory to both beekeeper and orchardist. The abuses stand out; for the orchardist the common abuses are: unwilling to pay a fair rental, failure to pay rental bills within a reasonable time, not giving the beekeeper enough notice of date bees are wanted.

For the beekeeper the common abuses are: renting weak colonies, renting packages at colony price, failure to notify orchardist if unable to



furnish bees.

These abuses are just common enough to keep the industry in a state of irritation and must be considered of some importance because some beekeepers regard the rental business with distaste and do not want to mix up in it at all. Last year some orchardists obtained rentals from outside the state, which of course they have a right to do, but it is hardly a thing for us to be proud of.

Some orchardists, as indicated, are always looking for bargains. They bear down heavily on the huge quantity of honey secreted by their blooms and regard a beekeeper as downright hostile if he will not move bees thirty miles for \$2 a hive. There are not many of these but enough to be amusing. Then there are the orchardists who quickly agree to a rental fee but either cannot pay it or just will not. The beekeeper moves his bees a round trip of sixty miles then drives a thousand trying to collect his money. There are not many of these orchardists either but enough of them so that some beekeepers have quit renting. The time element is involved also; some orchardists start looking for bees the day their bloom opens which can make things interesting all around.

As for beekeepers, some of them are probably not too closely related to the angels. The worst offense the beekeeper can commit, and sometimes does, is to leave an orchardist expecting pollination when he cannot possibly furnish it. The orchardist phones him that it is time to move the bees in and he replies, "Oh, I'm sorry, but my bees all died last winter."

The other abuses revolve around the age-old question of what is a swarm of bees. Is a hive with a pint of bees and a queen a swarm of bees? It's not common but I have found just such swarms rented at a good fee. Then there is the rental of packages. I wouldn't consider renting packages an abuse by any means, if the orchardist understands what he is getting. But does he? I believe the average three-pound package furnishes about one-fifth the field bees of a good overwintered swarm but that might not be readily apparent to a nonbeekeeper.

I wouldn't rule out the rental of package bees but I cannot make it half as strong as I would like to when I say that they should always be rented as just that, and at a comparable rental in proportion to their usefulness.

My own idea of a rental colony is a good colony in a story and a half hive. There is a good reason for my choice. The story and a half hive houses enough bees to do some good, also when screened, it is as heavy as I want to lift. But of course when I mention this in a meeting one man jumps up and says that a one-story hive should be standard and his neighbor jumps up and says that he would never rent anything less than a two-story hive. So of course my idea is controversial. But the need for some kind of standard is there.

I have spoken at several bee meetings on the need for standardizing rental fees and for setting up some reasonable standards for the strength of rental colonies. From the comment following my speeches I know that the whole business is complicated. For one thing there is the mileage involved. Some beekeepers are moving bees only a few miles to orchards; I think we have moved some at least a hundred miles one way. The beekeeper who moves bees a hundred miles or more must get a higher rental than the man who only moves them to the other side of town.

If we sometimes get rather nightmarish in our approach to orchard pollination it is nothing compared to what may happen to us in regard to trefoil pollination. The production of trefoil seed is becoming a major farm industry in the same area that is Vermont's justly famous bee region, the Champlain valley. There is no question but what the trefoil farmers will want pollination, they already want it and they are just getting

started. Where the orchards only need the bees for a week or ten days the trefoil men need them most of the summer. What rental then? Especially when some of these trefoil locations are also our best white honey locations. I don't think that the answer to that is going to be easy but we are working on it.

Vermont

## The Length Of Life Of Package Bees

J. H. Arnett\*

\*Provincial Apiarist of Saskatchewan  
This article is taken from The Canadian Bee  
Journal, April, 1955

April is the month when package bees are brought in from California and the eastern United States and installed in their new homes in Saskatchewan. Most packages contain one queen and approximately ten thousand worker honeybees. These bees must support their queen until there are sufficient new bees hatched to take over the job.

In other words, we are stating that since three weeks must elapse before the first bees can be hatched, the population of the hive will be reduced in the first three weeks. However, four to five weeks from the time the package is installed, the beekeeper should notice an increase in colony population. If this increase is not noticeable in the fourth and fifth weeks after installation, a beekeeper should become anxious and should carefully examine his early spring

management in view of making certain changes.

Important considerations of early spring management are:

1. The installation of the packages to coincide with the beginning of spring. This is often difficult to manage. However, a close contact with the package bee shipper can delay the shaking of the packages in the event of a late spring.

2. The location of the apiary is very important. For no apparent reason, one location may be very satisfactory while another location is far from satisfactory. High, sandy land with hills and trees seems to afford the best protection from floods and cold winds. However, the job of the beekeeper is to find the location where the bees will prosper.

3. Provide food independent of the bee pasture. Providing honey or sugar syrup and stored pollen in the combs to the new package means the difference between success and failure. Shortage of pollen may cause queen supersedure and will reduce the amount of brood. Shortages of honey or sugar syrup will reduce the amount of brood.

4. Finally, installing the package by a direct release method will mean that the queen begins to lay eggs within a few hours after installation.

In Saskatchewan, the use of the direct method of installation has encouraged the use of the three pound packages with two queens. These packages are often installed inside the honey house. Approximately half the bees are poured into one hive body with queen and the remainder is poured into the second hive body with the second queen. The hives are placed on a truck and transported to the spring location. The entire operation of installation and setting out of the packages is then accomplished very rapidly.

The race against time to replace

the package bees with new bees is vitally important. Any slackening of the race can easily mean the queen ending up in four weeks' time with a mere handful of bees and the recovery of this colony will be much too late for the main nectar flow in July.

In order to have some idea how long package bees live after they are installed, we made some limited observations in the following manner: a Caucasian 2 lb. package of bees was installed in the late spring and an Italian queen was introduced. The newly emerged bees from this queen were golden in color and were in marked contrast to the all black of the Caucasian bees.

Observations consisted of five-minute bee counts at the entrance of the hive. At the end of four weeks all flying bees were black but the combs appeared to be half covered by yellow bees. The oldest yellow bees were seven days old.

Two weeks later, two thirds of the bees flying from the entrance were yellow and the remaining third were black. An examination of the colony eight weeks from the time of installing revealed six old black tattered bees on the combs. The five minute observations gave all yellow bees working at the hive entrance.

The most significant observation indicates that half of the bees on the combs were yellow at the end of four weeks. We can expect that a large portion of the original package bees are still alive in four weeks. The population has, therefore, increased and the danger point has been passed.

To summarize:

1. The original package bees dwindle very rapidly after four weeks, even under the best conditions.

2. A queen must have the protection of at least one and one-half pounds to two pounds of bees for the first four weeks of the package colony.



### Our Cover Picture

Mrs. LUCILLE TEMPLE, Ohio's Honey Queen

Mrs. Lucille Temple, 25, of Brecksville, Ohio, wife of Nelson Temple, was Ohio's Honey Queen for 1955. She has a six-year-old son, Daryl. She helps her husband with the extraction and marketing of the honey, in addition to her duties as a housewife. She also teaches Sunday School, helps in young folks' activities and pursues two hobbies, flowers and cooking. Following her crowning, she appeared on radio and television in the Cleveland area, and in Columbus, Dayton, and Toledo. As H. R. Swisher, president of the Ohio Association, says of her: "Mrs. Temple is a real 'Honey Queen,' and not in name only because she works with honey and knows the value of this economical and valuable food. Although beauty is considered in the final choice of our queen, our state queen must know her honey."

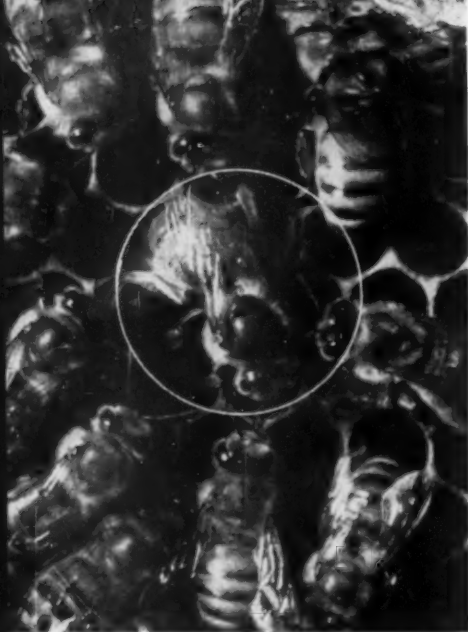


Photo by Ben Knutson, Alamosa, Colorado

### **THE QUEEN BEE** **Mother of Millions**

The queen bee was once thought to be a "king." It was a long time before it was found that the queen is a perfect female insect and that the worker bees are stunted and undernourished old maids, on whose tireless efforts depend the well-being of the bee colony.





As the queen lays so goes the colony.  
(Photo by Samuel Roberts Noble  
Foundation, Ardmore, Oklahoma)

# The Queen Bee

## Mother of Millions

by G. H. Cale

Bees were known to man in the cradle of humanity and they lived near him but had no intimate association with him. Probably the advent of the honey bee goes back long before man since fossil bees are found in amber formation from the Tertiary period.

The warm region of central Asia and Hindustan was likely the original home of the honey bee. In no other part of the world are there so many kinds of bees found together with so many flowers at their disposal.

As a result of the prolific distribution of the honey bee in these parts of the world, there came into being in the course of time numerous races of bees, probably not all pure, but distinct in habit and appearance. Most of these "races" have been used and evaluated for a long time and there were many importations of bees of most of the races into this country. Finally, however, our interest continued mainly in the Italians, the Caucasians, and the Carniolans, although from time to time there were those who championed the other races—the Egyptian, Cyprian, Hungarian, Tunisian, Antolian, Unicolor, Sahara, Syrian, Punic, Palestinians, Dalmatian, Hymettus.

The first Italian queens were brought to this country about 1816. P. J. Mahan brought them over from Dzierzon and he was the first to breed Italian queens in America. One of the

most prolific importers was Frank Benton, later with the United States Department of Agriculture, who traveled for years in Europe and Asia and sent many queens across the Atlantic to this country. One of the most successful importers was Charles Dadant, who visited Europe in 1872 and finally succeeded in arranging for the importation of queens from Guiseppe Fiorina, near Venice, and imported about 250 queens a year for 8 years and continued to import Italian queens for years thereafter. S. B. Parsons, a botanist, traveling for the government, brought 20 colonies of bees to New York from Italy April 18, 1860, but only two queens were saved. One was given to William W. Cary, of Coleraine, Massachusetts, who succeeded in raising enough queens to Italianize a large apiary for Parsons. One hundred and eleven of these queens were carried to California around the Isthmus of Panama by A. J. Biglow. Also in 1870 Adam Grimm brought back 67 queens from Italy.

According to Dr. O. W. Park, whatever may be the governing force of the colony it is certainly not the queen. She is a slave, an egg laying machine; she is the one and only individual indispensable to the welfare of the colony, mother of all the bees in the colony. She is totally devoid of any mothering instinct and takes no interest in her offspring. Her entire interest is in laying eggs. All other functions of a mother, incubation of the egg, nursing, caring for and protecting the young, are delegated to the workers. Yet neither the queen nor her workers can get along without one another.

Theoretically, barring accidents and other exigencies, every bee colony could maintain perpetual existence through repeated superseding of queens and the continuing reproduction of workers and drones. But, due to the loss of bee colonies through disease, accidents, and other incidents, there is a constant loss so that na-

ture provides for the continuation and increase in colonies through swarming.

As the center and "soul" of the colony and mother of all the bees, and actually in the end the source of all our honey, the queen's effectiveness is founded on the completeness of her mating and her opportunity to lay eggs in vast numbers.

There are several factors that influence mating; wind, temperature, sunshine, topography, and the availability of functional drones. Then there is the normal attraction of mating. We do not know whether the drone seeks the virgin or whether the virgin seeks the drone, or whether their mating instincts are dominant at the same time. Maybe drones miles away are induced to seek virgins in the mating yard because, when virgins are caged, drones from unknown distances may be found at the entrance of mating nuclei apparently attracted by virgins of mating age.

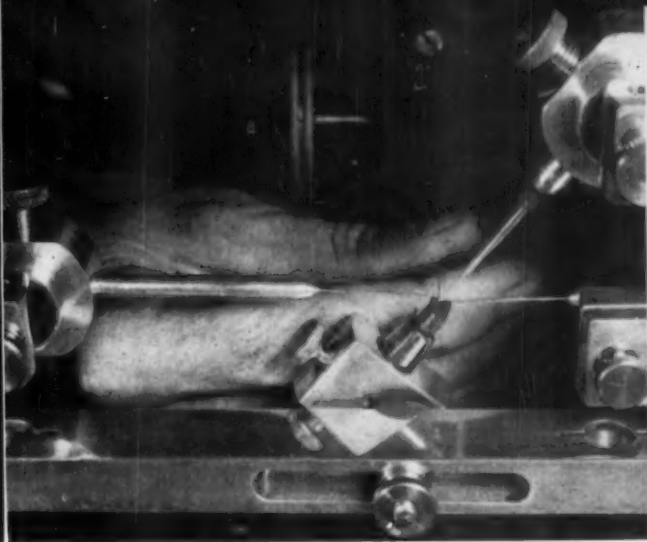
The old idea therefore of a setup for mating where the drones and virgins are in one spot is no longer as satisfactory as we formerly thought because we now know that virgins will fly long distances in mating and seemingly prefer to do so. Even when an abundance of drones of known color is provided close to the mating yard, when workers from the mated queen are observed, it is easy to determine that the mating of many of these virgins took place at a range beyond the mating area provided. So our conception of a mating area now means that drones of selected stock must be provided not only close by but at a distance of 2 or 3 miles to form a circle of drone flight that will result in satisfactory mating.

It used to be commonly accepted also that sexually mature virgins, ready to be mated, flew out on a nice, bright, warm day and the drones pursued; that the sexually mature, strongest, swiftest drones mated with the virgins; and that thereafter the





Laboratory and bee yard where Dr. L. R. Watson developed his technique for artificial insemination.



Equipment used for insemination with queen in process of sperm injection.

virgins, now mated queens, became the mothers of the colonies. They only mated once.

However, observations of mating two or more times runs back through the literature to the beginning of our records. W. J. Nolan mentions over 35 investigators who report queens that have mated 2, 3, or 4 times on the same day or in a period of 3 or more days. The latest observations, reported by Stephen Taber, III, in the *American Bee Journal* for December, 1955, page 474, "Multiple Mating of Queen Bees," show that virgin queens often mate with 6 or 7 drones and they may mate more than once in one flight.

It is evident, therefore, that the queen bee may not be well supplied with sperm in a single mating. If she is to lay eggs in large numbers for one or more years she must be well fertilized. Many queens live and remain fertile for several years before they are superseded. However, they may be replaced through supersedure once a year, every other year, or some times two or more times in a single year. We have seen marked queens in some colonies superseded three times in a single season.

Mackensen has shown that the drone can carry about 10,000,000 sperms whereas the maximum in the queen is about 7,000,000, indicating that not all the sperm in a single mating enters the sperm sac and potentially good queens may be poor queens if the sac is not well filled.

Taber has also found that the sperm from each drone that mates with the queen tends to bunch in the sperma-

theca and the sperm that fertilizes the eggs may come at one time largely from one of these bunches or from another one in succession or alternation. So multiple mating brings about a variation in the characteristics of the worker bees which comes from the availability of the sperm from the different sperm bunches that represent matings with different drones.

Because of the variables in mating, the egg laying of queens also varies considerably. As early as 1874 Charles Dadant showed that a good queen is able to lay enough eggs daily so there may be nearly 75,000 cells of brood in the hive at one time. By measuring the egg laying, variation has been noted ranging from 850 eggs a day up to 2,000 or more eggs a day.

Obviously, to secure the largest number of worker bees and in turn the largest possible amount of surplus honey the queen must maintain a constant brood area of solid worker brood. With queens of high egg laying capacity we have been forced to abandon the old idea that a queen in a single hive body has enough room to produce a colony. For years the single hive body formed the brood nest. Later it was decided that two standard hive bodies of comb must be furnished each colony for brood. Now often more than two are used. Three standard hive bodies for brood are not uncommon.

Toward the close of winter, usually in February, queens start to lay in the warmest part of the cluster, beginning between two combs and then going to a spot on the opposite side.

Then she circles this beginning, increasing the size of the brood nest as temperature permits, usually retaining the circular form until she reaches her maximum daily egg laying capacity.

Years ago beekeepers raised their own queens, because that was the only way they could get new queens. In the present day of specialized queen rearing, queens may be obtained readily almost anytime. Many producers of honey, however, who specialize in section comb honey or bulk comb honey still often prefer to select and rear queens for themselves to secure a strain suitable for their location and for heavy production.

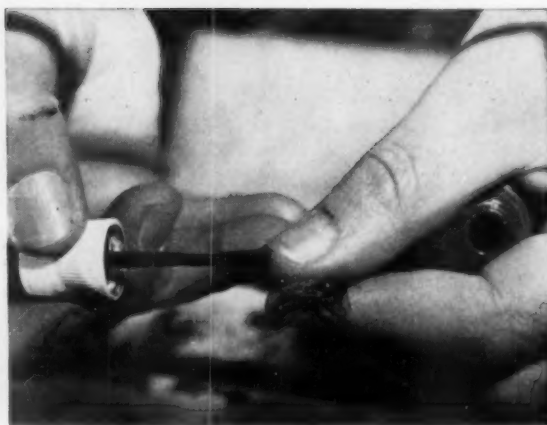
Methods of rearing queens and selecting breeding queens as practiced today by queen breeders vary in many ways. The equipment they use is constructed to suit their own requirements and mating nuclei range from baby size boxes to small full comb nucleus boxes and to full size divided colonies.

The commonest plan of rearing queens is to transfer very young larvae from brood combs to prepared cells which are primed with diluted royal jelly or a saline solution. The cells are then given to cell building colonies or are first started in a box of queenless bees called a swarm box and from this box the cells are distributed to cell finishing colonies and from there to queenless nuclei where they are mated.

In choosing breeding stock, the queen breeder considers production, color, gentleness, disposition, per-



Clipping the wings of the queen as a means of identification.



Marking thorax with color to further fix identification by record.  
(Pictures from Dr. J. E. Eckert).

formance, and appearance of workers (which should be just as near alike as possible). The breeding queen chosen should have a large deep abdomen, sturdy long legs, to stand the wear of climbing over combs and walking miles in egg laying, the brood should be compact and not scattered. Queens that are misshapen or undersize, or off color, or too long and pointed, or too short and stubby, should not be used. The queen with a well-developed abdomen of wide girth ending in a slightly reduced tapering is usually the best one for breeding purposes. She also should be loosely coupled between the head and thorax and abdomen.

Through all the years and with all the careful methods of breeding, mating has always been a chance one with drones and selected stock being provided right in the mating yard. With careful selection this has been fairly satisfactory but it still offers no control to maintain selected lines.

The thing that was needed to improve this situation was controlled mating. Controlled mating was attempted for many years by the use of tents, tall buildings, greenhouses or other devices to limit and confine the flight of drones and virgins in the same area. This was never successful.

Charles W. Quinn, grandfather of Dr. Harry Laidlaw, now in California first succeeded in controlled mating by hand. This, however, was not enough. A more sure way was needed.

It remained for Dr. Lloyd Raymond Watson, Alfred University, Alfred, New York, to devise a method of instrumental insemination of queen bees. In the December Bee Journal, 1928, Dr. E. F. Phillips, of Cornell

University, announced that Dr. Watson had demonstrated a proved method for instrumental mating. The Watson technique is now the one generally employed by those who are interested in research and in mating control the world over. There have been many improvements in the apparatus and in the understanding of the anatomical difficulties associated with the use of instruments, all of which have brought about great improvements in mating technique and have led to a well-established program for controlled mating.

Controlled mating now opens the way to the study of factors in selection and improvement such as tongue length, honey stomach capacity, flight habits, disease resistance, and other characteristics in the potency of queens. Other factors worth considering are vigor as shown in active flight; the shape and size of workers as they return from nectar gathering (if their return is eager and their abdomens are ready to burst they are good nectar gatherers). The continued presence of significant numbers of ragged winged workers indicates long life. The absence of such bees may mean short life.

The use of controlled mating has brought about the day of the scientific hybrid which is the union of two or more individuals from pure lines that differ in hereditary characteristics, so now by inbreeding with instruments any selection of races or strains can be reduced to pure inbred parents which, when crossed, produce the scientific hybrid. This will give us bees that remain constant in habit and it is limited only by mass production in natural flight which is the necessary method for producing large

numbers of new queens from the selected lines for general distribution.

Perhaps one of the most exciting discoveries in the relationship between the queen bee and the colony is that which has resulted from the work of Dr. Colin Butler, of Rothamsted, which was discussed at length in the American Bee Journal in July 1955. Dr. Butler has found that some substance, which he calls "queen substance," is passed around the colony from worker to worker and the sharing of this substance (which they get first from the queen and then from each other) is the most important single factor in the social organization of the honey bee community. Every bee in the colony continues to feel satisfied (queenright) as long as she obtains a share of this substance either direct from the queen or other workers.

Butler has been able to show that the bees of a colony will make plans to supersede their queen when the amount of queen substance which she produces has reached a low point. It is also probable that either a deficiency in the amount of queen substance or some break down in its collection and distribution results in the workers tolerating eggs and larvae in queen cells preparatory to swarming. This substance may be part of the waxy coating which covers the queen's body because it is soluble in alcohol and acetone.

What will we find out next? We are on the threshold of greater knowledge of the queen and her potentials than we have ever known; this queen who is the mother of our colonies and in whose ability lies the success of beekeeping and honey production.



# The Side-liner

## How To Make Spring Divides

by G. H. Cale

Spring is quite a spell of time, from the 21st of March to the 21st of June, three full months—that is, by the calendar. We usually won't make divides until it is reasonably warm nor will we want to use crop-producing colonies for them during the flow period of late May and June. Also, it is hard to define "spring" as it varies from north to south. So maybe we should set our sights on methods, rather than time.

Making divides can begin when the weather is warm. You won't have time to raise queens so, unless you have saved them in overwinter nucs, you'll have to buy them so they will be on hand when you want them.

If you have colonies that have wintered in two hive bodies, reverse them as early as you can (say about the time of fruit bloom) so the queens will go up into the second body, after reversal, and so extend the brood into both bodies. Then set the lower body (used to be the upper one) which will have the oldest brood and the emerging brood to one side on its own bottom board. Don't look for the queen. After five days all eggs will have hatched in one of the bodies, usually the one you set to the side. That one now is without a queen. Give a new queen to it. Let both colonies grow by themselves. If you don't want to pull down the original colony too much by this plan, later move the new one with the new queen to a new spot in the yard. Most of the field workers will go back to the parent colony and you won't have hurt the crop much from that colony. I think, though, that if you consider the crop from both the parts as one you will have about as much total as you would have obtained if the original colony had not been divided.

Colonies that have queens that are not going to make a strong force for the coming flow may be split into

two-comb nuclei with added new queens. Set the nucs wherever you want them until the queens are accepted, leaving one of them on the old stand. It will catch all the field workers of the others. Soon the others will lose their old bees and readily take the new queens. Then exchange the position of the nucs with other colonies. Let them grow first until they are well supplied with brood from the new queens so the exchange will not result in the killing of the new queens. This sometimes happens when you put a small nuc in the place of a full colony. These new colonies will grow up to full colonies and usually make winter stores. They will be among your best colonies next year.

Planning for new divides can begin the previous year by establishing nuclei, even during the flow, and letting them grow as they will, winter-

ing them over strong colonies above screens, and setting them where you want them in spring. Then you have a chance to use your own queens for the divides.

If you have colonies during the flow that just won't store, and this is not because of disease but rather because of failing queens, they may be taken home and divided at once into nuclei of suitable strength, given new queens and so let grow for next year. Supers on the colonies can be given to other colonies, bees and all.

As the season advances colonies begin to show differences in growth; some may be classed as good, but since they started from a lower population point, they have not advanced as rapidly as others; some are medium, or you might say, normal in growth; and some are very populous with above average brood total. The latter, and even some of the near medium ones, may well spare some brood and bees and so furnish material for early divides and, at the same time, with the brood curve somewhat reduced, be protected from early swarming tendencies. The removal of brood and bees and the return of empty comb space at the sides clear the brood nests so the queens may continue to expand and the loss will be made up rapidly.

In making these divides only one or two combs of brood and bees are taken from each colony chosen. The bees and brood are placed together in an empty hive or a small nucleus hive no matter from which colony they come. We use a five-comb nucleus box that may be covered and taken home so the bees will not drift out to return to their original colonies. New queens given to these divides are readily accepted and the mixing of the brood from different colonies does

*(Please turn the page)*



Queen marked and clipped. Identify your new queen this way and you know her history.  
(Photo by Ben Knutson, Alamosa, Colorado)



## Spring Divides—

not seem to provoke any resentment between the bees. Usually these mixed divides will progress rapidly into full colonies and may produce some honey.

Bees without brood can also be used for divides. The bees are shaken from populous colonies in the early season to form regular packages which may be hived in a new location, given new queens, and later boosted with brood from other colonies. We have removed bees in this way, in the early season, and the colonies from which the bees are removed make about as much honey as any

others. Likely, at this time of year, the bees that are taken away are not the bees that enter the flow. The removal of the bees seems also to act as a stimulation as the egg laying not only continues energetically but seems to increase somewhat.

Later in the season, after the summer flow, as late as July in our case, bees and brood taken to form strong mixed divides usually will grow into full colonies before fall and often will store enough for winter. These summer divides must not be made too late in the season or the time left for them to establish themselves will be too short and heavy uniting will have to be made to get them into condition to winter.

colony I put a sheet of newspaper between the hived swarm and the bees remaining in the colony that cast the swarm. Also to entice the bees to stay in the new hive I put a little anise oil around the inside. The bees adore the smell.

Another tip—when you carry away a super of honey, lay a piece of paper over the top and the bees will not come out toward your face.

This summer I also tried a good stunt. I removed a super of honey from the hive placed the bee escape board over two sawhorses and set the super of honey on the escape board. Then I placed an empty super above covered with a sheet of paper. The bees went out the bottom, flew to the top and clustered on the paper. Gently I would take the paper back from the top and so release the bees.

In this bee business there are problems all the time and it is up to you to solve many of them yourself. In my own case I do not have either the equipment or the room to allow for storage, so I try to work with what I have and I try to dispose of my honey as rapidly as I can.

## Some Things A Beginner Needs To Know

by Elizabeth Lewis

(Pointers taken from a talk before the Puget Sound Beekeepers' Association)

In the February number the cost of equipment was mentioned, how I got started, handling package bees, and some mistakes.

Now, with the bees on the way to build themselves into colonies, we found that they did not shirk (as we do sometimes in not providing enough "parking space" for honey) but they progressed rapidly until it came time to remove the honey.

We were told to put on an inner cover between the honey super and the hive with a bee escape in the center hole, with the idea that the bees will go down through this escape and not return. I did this but when I took a look again what did I find but a lot of dead bees on the inner cover. When I talked to one of our members about this I learned that one escape is often not enough, better have several holes with escapes. The bees get out faster and there will be few dead bees.

From my experience, too, I learned, since I am just so tall and have no male or female assistance at "Acres of Diamonds" (the name of my place) one hive high is all right to handle, so are two, but when there are three

the lifting of the super is just too much, even if I stand on a box or place the super on a box. Now I use six-inch supers that I can handle with little difficulty and I don't have to remove combs one by one to lighten the load. Removing combs this way breaks into burr combs between the frames, allowing honey to leak and making a nasty, sticky mess.

I also learned that when you use a hive tool you should not let it slip. If you do the 80,000 bees housed inside come right out to see you. Also a person must be calm and collected when observing or handling bees. I had one colony that used to know when you were a quarter of a mile away. Everytime I thought of looking into that hive my system would be accelerated to the point of a nervous breakdown. The bees were the same as others except they stretched out their stingers to a two-foot length. Recently the inspector examined them and said they must have swarmed as they were very docile. So maybe a new queen has changed that colony.

I have done this in hiving a swarm: If I do not want to have another

### New Pellett Gardens Bulletin

The new 1956 bulletin of honey plants offered by Pellett Gardens, Atlantic, Iowa, is ready and copies may be secured by writing to the Gardens. The bulletin lists vitex, golden honey plant, Pellett clover, birdsfoot trefoil, bittersweet, pea tree, beauty bush, Tartarian honeysuckle, cotoneaster, anise hyssop, mountain mint, meadow sage, summer sage, garden sage, purple loosestrife, wild indigo, catnip, marjoram and many others of interest to beekeepers.

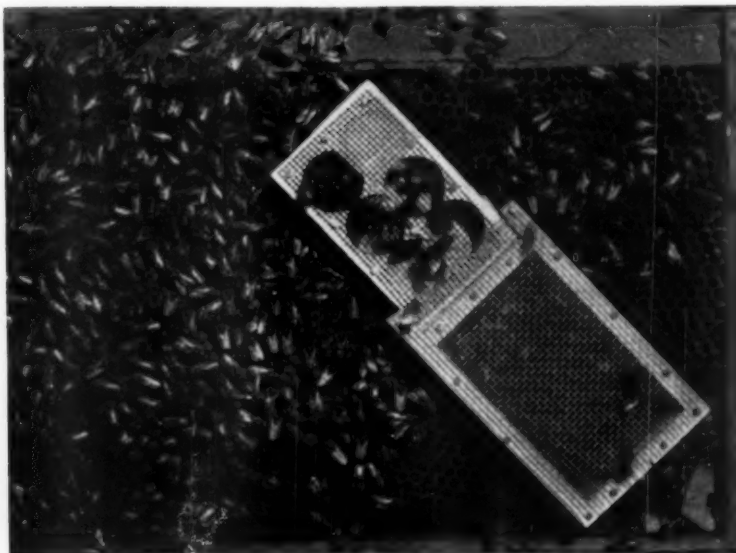
### Job Wanted

Gert Koblinski of Auguste-Victoria Strasse 30, Berlin-Hermsdorf in Germany desires to locate in U.S.A. to learn American beekeeping and queen rearing. Age 28, married, no children, studied at University of Berlin, qualified as expert in bee diseases and in bee breeding.

### The Side-liner

Just how do you class one who keeps bees as a "side-liner"? Many side-liners are commercial beekeepers if you accept the definition on page 92. However, there is perhaps one characteristic that does distinguish a true side-liner from all others, and that is a bounding enthusiasm for bees not measured by dollars and cents. Such beekeepers will keep bees even if they spend more than they make from them. So in one and the same person you may combine commercial enthusiasm with the perennial glow that comes from the pure joy of keeping bees. If you are this sort of person you want to try everything that comes along. You want to know even the little things others do and you want to tell others all the interesting things you do. Well, why don't you? All you have to do is write and you don't have to be a skilled writer. Just tell your story. We can make you proud of it.





Push in cage that lets queen in easily from her mailing cage.

## REQUEENING IN FRUIT BLOOM

Of all the times to requeen, fruit bloom time is the best. It is true that new queens may be introduced almost anytime now that we know how to do it. But, from the standpoint of the beekeeper, fruit bloom is the easiest time. Bees do much of their own requeening, particularly during the latter part of the honeyflow and in fall, by superseding (often by swarming if we let them). And most of these new queens are good, with nice bodies, well developed abdomens, a good strong set of legs, eggs developing into solid brood; can't ask for better.

But—spring comes, brood rearing has already been going on for some time, perhaps since February in the central states, and you can then look over the colonies in fruit bloom and see queens that do not lay to suit you, or that are just scrawny things, sort of a disappointment and old maidish. Sometimes you find poor appearing queens, but the brood is fine. Often this is because there is a daughter doing all that good work. So, be careful; don't take out an old mother, and give a new stranger because she'll be killed and, when you see a queen in there again, you will be fooled because you will think it is your nice new queen for which you paid a good price. Of course, even if you did have

the old mother spotted with color, the daughter won't be and you'll really get fooled.

Where you do have a sound case of "poor queen," then, this early, a new queen will pull the colony into production pretty fast.

During fruit bloom the population is still low compared to honeyflow time and you don't have so many bees to gaze over to find the queen you want to replace. She is usually right there in the center of the brood area or where the youngest brood is. Set out the side combs if you want (careful of robbers, though with fruit bloom nectar coming in there may not be much robbing); then pair up the brood combs, if you have not previously seen her ladyship; after a few moments, just look between the pairs carefully and you'll likely find her.

Now, it's true a new queen, right from a mailing cage, won't be too readily taken by the bees after you have destroyed the old queen. If she were laying and quiet the bees would quickly accept her. What to do? Do not use the mailing cage in which the queen and her attendants came; instead make a wire cage out of window screening, about four inches square and an inch or so deep. Put a three inch plug of queen candy inside in a half-inch square tin tube, fastened

to the wire at one side, and extending through the folded screen so the hive bees can get at it.

When you have removed the old queen, find a spot on a brood comb where young bees are emerging and set the wire cage over this spot lightly. Then take the new queen out of the mailing cage (in the car if you want, with windows closed so she won't fly off for parts unknown); push her gently under the wire cage on the brood, and set the cage firmly into the comb.

The new baby bees will take this queen as their own; the queen will start to lay inside the cage; the bees will feed her through the wires or she may lick up a bit of the candy. Finally the bees will eat her out and she is already as welcome as the fruit bloom flowers. (Let's hope you bought a good queen.)

### Old Queen Chosen

One spring I united two colonies, one having a young queen and one an old queen. Sometime later I was prompted to go back to see just how the united colonies were doing. As I lifted the inner cover there on top of a frame was the old queen, with several bees holding her by the wings. One bee took position on the back of the queen with her stinger towards the head of the queen. Carefully feeling a spot in the queen's neck, she stung the queen just at the base of the head. The queen made a little jerk, as from an electric shock, and was dead.

A. Kruczek  
Detroit, Mich.

### Bushy Polygonum

Several have asked about where they can get plant material of the bushy polygonum (*Polygonum cuspidatum*) mentioned by Margaret Griebel in January. (Henry R. Rice, of Three Rivers, Michigan; R. E. Golden, also of Three Rivers; Raymond H. Irwin, Woodward, Oklahoma; and Walter Burkhart, Lancaster, Pa.) According to Melvin Pellett, of the American Bee Journal Honey Plant Gardens, Atlantic, Iowa, bushy polygonum is mentioned in "Plant Buyers Guide" and it may be obtained from H. Kohankie & Son, Painesville, Ohio.

# The Low-Down on Upside-Down Beekeeping

by Julius Lysne

Many beemen have given the system of upside-down beekeeping a trial and have given it up as unworkable. The system we refer to, of course, is that of placing the supers on the bottom board and the brood nest on top, using only a top entrance. The plan does not work well if used throughout the honeyflow as the queen is driven down into the supers in a few weeks.

However, a modification of the plan can be used to good advantage. The equipment for this system consists of a homemade bottom board, 16¼ inches wide by 20 inches long, which is simply three boards held together by cleats—the exact size of the hive. A standard bottom board makes a good cover as it provides an upper entrance large enough at the beginning of the honeyflow.

Until the beginning of the main honeyflow, management is the same as with any other system. When the main honeyflow begins, place the brood chamber with the sealed brood on the bottom board, add three shallow supers and on top place the brood chamber with the unsealed brood and the queen. If any queen cells are found, destroy them. The only entrance to the hive is at the very top and it should be ¾ inches deep. The bees will crowd honey into the top hive body. This is to be the food chamber for winter. In due time, the queen will be crowded down. She is not apt to lay in the shallow supers as they have light-colored combs. The queen will descend to A (see Figure 1) as these combs are dark and there is ample room, since by this time the sealed brood has emerged. Of course, while the queen is in B it is easy to go over each brood comb every week and destroy queen cells.

In about two weeks the queen will be driven out of B and the hive body will be well filled for winter. At this time the hive should be arranged as in Figure 2. The reason the hive is staggered at B is to provide an entrance to the brood nest and also to assure proper ventilation. The upper entrance can now be closed if desired

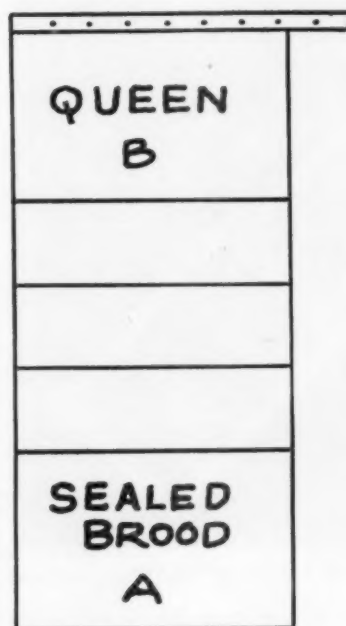


Figure 1

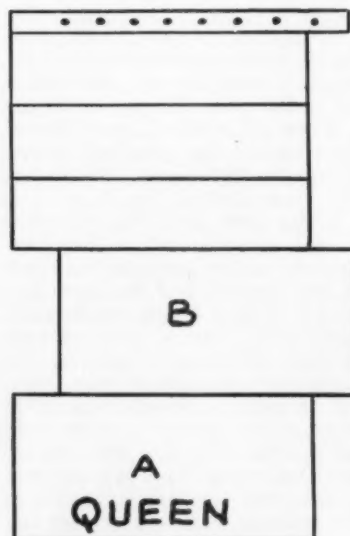


Figure 2

or it may be left open. In either case, most of the fielders will soon learn to use the entrances at B. Super on top as needed during the flow.

By this system good crops of honey are obtained and swarming is controlled. Each hive must be requeened each year. The plan works as well for section comb honey production as for extracted.

Wisconsin

## New Revision By Caillas

Alin Caillas of France, champion of the value of royal jelly, is out with a revision of his 450-page book, "Le Rucher de Rapport." It can be truly called, as it is on the front cover "Encyclopedie Pratique D' Apiculture Moderne," including the latest in manipulation, history of beekeeping, and so forth. Available only in French from the author Alin Caillas, 40 Boulevard Aristide Briand, Orleans, France.

## Another Book by Sechrist

"Amateur Beekeeping" is the title of a 150-page bee book by E. L. Sechrist just published by the Devin-Adair Company of 23 E. 26th Street in New York. The manuscript for this book was evidently prepared before the death of Mr. Sechrist.

Any book by Sechrist cannot but be of value with the knowledge that he had of beekeeping. Some parts of the book will not fit the amateur beekeeper, and some other parts present some original ideas by the author. But the book on the whole is to be recommended. We are stocking a few copies for the convenience of our readers. The price is \$3.50 postpaid.

## Louisiana Bulletin

E. Oertel, Apiculturist of the Beekeeping and Insect Pathology section of U. S. Department of Agriculture stationed at the Bee Culture Field Station at Baton Rouge, La., is the author of the 48-page Louisiana State Bulletin "The Beginner Beekeeper in Louisiana." This is a third edition of this bulletin, but completely and creditably revised; in fact almost a new bulletin.

It ranges through apparatus, manipulation, operation, seasonal factors, pollination, plants and secretion, and enemies and diseases.

Copies, we presume may be obtained by addressing the Louisiana Department of Agriculture and Immigration at Baton Rouge.

## Pennsylvania Sweepstakes

Sweepstakes at the Pennsylvania Farm Show in Harrisburg were won by Margaret S. Moss, Linglestown, for comb honey and by Robert Yepson, Honesdale, for extracted honey.



## MARGARET LOGAN

### Outstanding Scottish Beekeeper

by Dr. J. N. Tennent

The most outstanding woman beekeeper in Scotland today is undoubtedly Miss Margaret Logan, one of the staff of the Beekeeping Department of the North of Scotland College of Agriculture.

Hailing from the Ardross district of Ross-shire, Miss Logan was educated at Tain Academy. She comes of farming people and it is not surprising that beekeeping was one of her early interests. As a student at Craibstone, the Aberdeen school of beekeeping, she took the Expert Certificate under the late Dr. John Anderson. So impressed was he with her ability that he advised her to apply for a post then vacant on the College staff and this appointment she secured in 1937. Following a period as Assistant Lecturer at Craibstone she was transferred in 1944 to the area including Inverness and the North. Since then she has traveled widely through this district giving practical advice to the scattered crofting areas of the Highlands, organizing courses in beekeeping at strategic points and always recommending that beekeepers form local associations for their mutual advantage.

Like Dr. Anderson she finds that the best honey yields are procured from fifteen-comb hives and she never fails to put up a convincing case for their use. Her gift as a lecturer makes her much in demand throughout the whole of Scotland.

Two aspects of beekeeping have claimed her special attention. First, she has sought to work out a simple method of management for honey production and this she has embodied in her "Synopsis of Good Beekeeping Practice." The synopsis, under the direction of the late Mr. A. R. Cumming, has been elaborated into a book which was published in 1950 under

the title "Beekeeping: Craft and Hobby."

Apart from her teaching gifts she is one of the best practical beekeepers in this country. This is evidenced by the fact that no matter what the season is like her colonies show a good average crop of honey and in 1937, 1949, and again in 1955 she harvested over a ton of honey from 20 colonies.

Her other special interest has been the eradication of American foulbrood disease. In 1941 she assisted Dr. Morison with the first Brood Disease Survey in the northern area, and, incidentally, the first conducted in Britain, and she has probably handled more cases of foulbrood in Scotland than anyone else. Since 1945 she states that she has been using sulphathiazole "with absolute success."

One of Miss Logan's greatest assets as a teacher and lecturer is her unbounded enthusiasm for the craft and it is certain that she has stimulated a great many, both men and women, to pursue this fascinating hobby.



Left to right, W. Allen, president of the Scottish Beekeepers' Association; Miss Logan; and Dr. Cory Morison, Entomologist, North of Scotland College of Agriculture.

### A Quick Way to Introduce Queens

To introduce a queen in a two-story hive raise the cover and put a lot of smoke in to drive the bees down to the lower hive. Then remove the top hive as the queen will now be in the bottom. Smoke the bottom hive from the front and back. As the bees come up and run over the sides, the queen will be among them. Usually she will walk over the bees to get away from the smoke and she is easy to pick up. Leave her dead in the hive and put the cage with the new queen between the hive bodies and close the colony. You are done in about five minutes. The bees will accept the new queen perfectly. I have particularly good luck this way in fall requeening.

Vernon Powis, Mt. Pleasant, Mich.

### Hiving Packages when Weather Is Cold

In the spring of 1955 I received a three-pound package of bees that had been on the way six days and I was anxious to get them hived. The weather here was so cold and wet that I took them into the house and waited until night to hive them. This I did under electric lights and not a bee took wing. I did not use a smoker and the transfer was quiet and orderly.

E. H. Smith, Fulford Harbor, B.C.

### Berks County (Pa.) Boy Repeats As FFA Honey Award Winner

For the second consecutive Farm Show, Eugene Taylor of Oley, Berks County, a Future Farmer from Oley Township High School, has been the leading winner of awards in vocational classes for apiculture products. Judges of the honey entries awarded 27 prizes and Eugene won four of them—a first, two seconds, and a third.

# The Beginner and His Bees

by W. W. Clarke, Jr.

Extension Apiarist

Pennsylvania State University

## How to Get Started

A beginner, especially one without supervision, will find it best to start his beekeeping with package bees and new equipment which he may order from one of several bee supply houses. This is by no means the cheapest method, but it is the safest and gives him a chance to study the bees as they grow in strength. He can better observe them as they build comb foundation and he can watch the queen start to lay and the bees develop in the new comb. As a general rule, package bees are easier to handle and the beekeeper will grow in knowledge and confidence as the colony gains in strength. All in all, he will gain more good experience from his package bees than he can from an established colony. A pound of bees contains about 5,000 bees and a three-pound package and queen makes an ideal unit for the start.

A second choice in getting started would be to buy an established colony. If he does decide to buy one, the help of a reliable beekeeper is needed to check the condition of the equipment, strength and price of the colony, and to make sure the bees are free of disease. If the equipment is in poor shape or if the bees are diseased no price is cheap. It is very discouraging to have odd-sized equipment which is not interchangeable or just does not quite fit. If it is a

little too tight, the bees propolize or glue everything tight and, if the space is too large, the bees fill the space with wax and honey. It is really necessary to use standard equipment full of frames, if one is going to enjoy working with bees, whether for fun or profit.

A third method by which many beekeepers have started beekeeping is by catching swarms. In almost every locality it is possible to pick up swarms simply by going to capture them. A swarm is usually easy to capture either by cutting off the limb on which the swarm has landed and laying it in front of the hive or shaking or brushing the bees near the entrance to the hive. The bees will usually walk into the hive with the queen and set up housekeeping. It is usually not necessary to smoke a swarm. Feeding the swarm sugar sirup at this time will help the colony build up more quickly. A swarm is usually very easy to handle since the bees are full of honey and looking for a home. If a swarm has hung for several days and the weather is bad, then you can expect more trouble. Regardless of when they landed, protect yourself with a veil and tie your trouser legs so the bees stay on the outside. You will feel much more at ease if you don't have to worry about bees getting into your clothes. Here



again, it is important to place them in standard equipment with frames and full sheets of foundation. Any other method of getting started is not worthy of mention for the beginner.

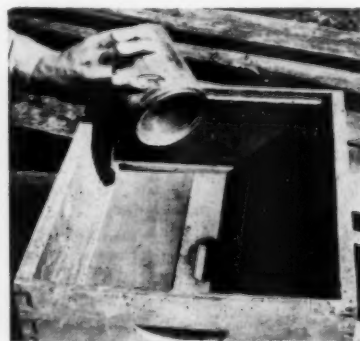
There are three common races of bees and there are champions of each race but the old saying "40 million Frenchmen can't be wrong" might apply here. It is safe to say the majority of beekeepers today keep the Italian or yellow race of bees. More work has been done on the breeding of the Italian than on the darker Carniolan or Caucasian; also they can be obtained at almost any time from a greater number of breeders. The darker races are reported to have some very desirable characteristics, such as gentleness and hardiness, and, as a general rule, they produce white cappings for comb honey. Most of these characteristics can be found in the Italian bees without the undesirable features of excess swarming in Carniolans and excess propolizing in



Sprinkling package of bees to get the bees quiet before shaking them into the hive. A method preferred over painting by most.



Open queen cage on bottom board, with five frames removed, ready to shake bees on top. Preferred over sticking cage into hive in our area.



Bees shaken into hive and frames replaced. Feeder can be used over opening in inner cover. Protect with empty super and hive cover.



the case of Caucasians. It is said these habits have been corrected in recent years through selective breeding. After the beekeeper gains more experience he may be interested in comparing the Carniolans and Caucasians with Italians.

Bees are usually obtained in the spring. Package bees should be ordered during the winter so the bees will arrive at the proper time. In the area of Pennsylvania, package bees should be introduced after April 15. (Never on the 15th, since this is the opening of trout season in Pennsylvania!) This is about six to eight weeks ahead of the clover honeyflow. If the bees are needed for fruit pollination, they should arrive about the time the blossoms open for best results, since the colony will lose its initial strength until the young bees start to emerge about four weeks after being installed. Package bees must be fed. Even though some plants

are blooming, it must be remembered that package bees need extra care and food. It will take about 20 pounds of sugar made into sirup to take care of a three-pound package of bees on foundation. It will take slightly less if drawn comb is used, in which case a good rule is to feed until there are at least six frames containing brood. When feeding is stopped, add a shallow super. It is seldom necessary to feed pollen or pollen supplement in areas such as Pennsylvania.

It is difficult, as you can see, to give definite plans for getting started for the whole country. In general, starting with new standard equipment, with full sheets of foundation, and package bees is most important. Get bees at fruit bloom or about six weeks ahead of the clover bloom. All bees will profit from feeding, especially package bees which will require 15-20 pounds in most areas. Italian bees are preferred by most beekeepers in this country.

participants in the school lunch program in the entire country, but I am sure that if all schools encouraged the use of honey by means of servers as has our local school, the increased consumption of honey would amount to millions of pounds annually. Nor do I consider this outlet for honey to be the chief value to beekeepers. Rather, it is the fact that these pupils are acquiring the honey habit, and they are going to ask for honey at home. This is an opportunity that should be considered by all beekeepers.

Everard Flygare, Minnesota

## In Memoriam

### Mrs. N. E. France

Many of our readers will remember the days of the late N. E. France as inspector of apiaries for Wisconsin. Mr. France was really the dean of early inspection. His wife, Mrs. N. E. France, passed away in Madison, Wisconsin on January 7 at the advanced age of 97 years.

### Mrs. E. J. Dyce

"Tim" Dyce suffered the loss of his wife recently. Mrs. Dyce had been in poor health for some time but, in the end, did not have to go through a long and painful illness. She leaves Dr. Dyce with two grown children, Marilyn who finished her B.A. degree last spring and is taking graduate work in preparation for teaching art; and Rolf who has finished his Doctor's degree in electrical engineering and is now on a two-year stretch in the Air Force in research.

### Earl Hodder

Mrs. Hodder reports the passing of her husband, Earl, at Cobleskill, New York, from a heart attack on January 7. Hodder was a veteran teacher of agriculture with 38 years in this vocation to his credit at the State University Institute. He was an ardent beekeeper.

### M. C. Morgan

Funeral services for M. C. Morgan, well known beekeeper and dealer of Blue Mound, Ill., were held December 26 at the Christian church with full military services as he was a veteran of World War I. His death was caused from a cerebral hemorrhage. He began working with bees when he was eight years old. He has been an exhibitor at the Illinois State Fair for years and he won many prizes for his fine honey. He was a member of the State Association and the Central Illinois Association.

## Honey Booms at School Lunch



Here is a picture of the lunch room at the Annandale (Minnesota) Public School. As you can see, honey servers are standard equipment on all the tables.

At the time the school was being provided with surplus honey from the federal government servers were not being used, and the cooks were having difficulty using up all the honey being supplied to them. At the suggestion of the state administrator of the

school lunch program, servers were put into use and honey immediately became a fast moving item. The pupils use it chiefly on butter and peanut butter sandwiches.

After honey was no longer available from the government, the school began purchasing honey from me. The four hundred and some persons served here per day are now using honey at the rate of about 800 pounds a year. I do not know the number of



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# Pollen Feeding and The Expectancy Of Life In The Honey Bees

by Dr. H. M. Fraser

(Translation from Schweizerische Bienenzeitung Dec. 1954)

In the Agricultural Year Book of Switzerland (Year 68, part ii. 1954) Frl. A. Maurizio publishes a bulky study about pollen feeding and expectation of life in the honey bee.

The work is concerned with the influence of pollen feeding on the longevity and physical condition of confined bees and also of bees which are flying freely. The enquiries extend to the comparison and effects of different kinds of pollen and also of pollen substitutes. The seasonable variations in the length of life, the physiological condition of bees in a colony flying freely and the influence which the care of the brood exercises on it are critically examined. Maurizio comes thereby to the following conclusions:

## I. Experiments with Bees in Confinement

1. Pollen feeding caused a prolongation of life and the development of the pharyngeal glands, fat bodies and ovaries in the young bees.

2. The pollen of different kinds of plants is not of equal value to the bees. Three groups can be distinguished according to their efficiency: highly effective physiologically, fairly efficient, and inoperative kinds of pollen.

3. Hand-collected pollen is less effective on the bees than pollen from the same plants pelleted by the bees.

4. In general there exists no direct connections between the biological arrangements of the blooms of the kinds of plants and the efficacy of their pollen. Only in the groups of the inoperative kinds of pollen are exceptional windbloomers in the way, among them all conifers which have been examined.

5. Pollen feeding is effective for young bees if it begins before the eighth day of life; on the sixteenth day of life the commencement of pollen feeding no longer influences the length of life and physiological condition.

6. Dry storing at room temperature and drying in direct sunlight injures the effect of the pollen.

7. According to the statistical evaluation (multiple correlation) there exists a direct connection between the length of life and the physiological condition of the bees; the closest is the correlation between the length

of life and the fat bodies.

8. The pollen substitutes which have been tested are according to their composition, their degree of freshness and the method of their production differently effective to the bees; no substitute tested up to the present attained the efficiency of the best kinds of natural pollen.

9. Of the materials making up the pollen the albumen component reaches the greatest importance. The vitamins Aneurin, Adermin and Pantothen acid have little influence on the length of life and physiological condition of adult bees.

10. Fully developed ovaries of the worker bees often develop golden, oily flakes which remind one of the corpora lutea of the queen's ovaries.

## II. Experiments with Bees Which Were Flying Freely

1. Between the bees living in the colony during the summer and winter months there exist fundamental differences in respect to the length of life and physiological condition.

2. The short-lived bees born in the autumn acquire the winter longevity through a sojourn in the colony which is accustomed to winter conditions. The longest-lived are the bees from September to the end of January. The first marked bees, put in during the autumn, were found in the experimental colonies in April and May after 215 to 233 days.

3. The physiological condition of the bees proceeds during wintering parallel to the longevity. The pharyngeal glands are developed earlier and exhausted later than the fatty bodies. Both organs reach their maximum development from October to February. The ovaries follow up to a certain point of the winter curve without, however, reaching the maximum development.

4. During the summer months important differences exist between bees in a normal colony possessing brood and similar ones in a queenless colony (that is, one without brood) as regards longevity and physiological condition.

5. In the colony possessing brood, the marked bees reached, at the most, 60 days; in the colony without brood the last were found 167 to 188 days after being put in. The broodless con-

dition of the colony therefore caused an increase in the length of life of the bees.

6. Similarly the physiological condition of the bees was slowed. In the colony with brood the pharyngeal glands which developed in the beginning disappeared after 30 to 40 days at the latest, the fatty bodies did not attain to full development, the ovaries remained undeveloped. In the broodless colony the pharyngeal glands, fatty bodies and ovaries were developed to the maximum after four to six weeks and remained in this condition up to the close of the experiment.

7. According to the experiments in colonies with and without brood; brood rearing has decided influence on the duration of life and the physiological condition of the bees. Through the lessening of brood rearing physiologically "winter bees" appear in a colony during the active season, which however are distinguished from the true winter bees by the development condition of the ovaries.

An extensive bibliography gives information about the books on the subject in all languages and very beautiful photographic illustrations explain the text.

## Soil Bank Significance

It is early yet to assume just what is going to be done in Washington about solving the farm problem permanently. But it does appear that some new plans will be presented. One of them is the "Soil Bank" plan, by which farmers would be compensated by not planting some of our presently supported crops but instead building up a soil bank for the future through the planting of legumes. As beekeepers we can realize the significance of the possibilities in additions to our nectar sources.

## Honey Price Support Program

Summary of 1955 honey price support program as of Dec. 15 has recently been issued by the Marketing Service of the U. S. Department of Agriculture.

It reports loans outstanding on slightly under a million pounds of honey, and purchase agreements for some 100,000 pounds. This compares with nearly seven million pounds loaned upon and three million pounds under agreement in the 1952 program; about double the 1955 amount was under loan on same date in 1953; and compares with 1,120,000 pounds under loan and 705,000 pounds under purchase agreement in 1954.

# Traveling With The Lovells

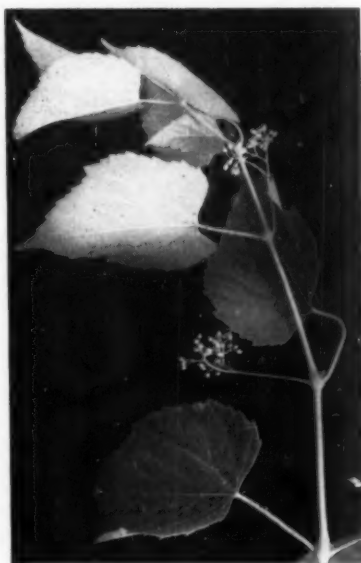
. . . Arkansas



Arkansas is one of the most interesting states from the standpoint of beekeeping. Large crops of honey are not only obtained by most beekeepers, but the variety of honeys stored is amazing. Among the honey plants are such vines as rattan, climbing buckwheat, muscatel, and pepper vine; trees such as black gum, tupelo, persimmon, holly and black locust; and herbs such as boneset, crimson clover, vetch, heartsease, aster and Spanish needle.

Coming east from Oklahoma through the Ozark Mountains, we were told of a large beekeeper who lived "a couple of miles down a side road." After driving down one narrow dirt road after another for 12 miles we finally found his home with an apiary at the back. The house was a typical unpainted Ozark home, but he had a well-equipped honey house with an extractor and other apparatus. Numerous jars of amber mountain honey were lined up on the shelves but we were unable to find the owner.

At North Little Rock, we had a pleasant morning with Raymond Fischer who combines beekeeping with a large honey packing business. His heating equipment and large pressure filters were gleaming and spotless. He was most generous with his time and knowledge and remarked several times when we asked him questions, "I have no secrets." He gave us several samples of his honey including vetch and Spanish needle. He particularly praised the honey from Spanish needle for its fine yellow color and rich flavor. "Yellow is the natural color for honey," said Mr. Fischer, "and I have trained my customers to expect it." By saving the fall crop of yellow honey and blending it the next summer with the white honey from vetch and other legumes, he obtains a bright yellow honey with beauty and character. At Christmas time Fischer puts up Spanish needle honey in little jugs which sell well. While we were there, a large truckload of honey in 60-pound cans came in from Louisiana and was unloaded while we watched. It had been made chiefly from black willow, a very com-



Heart-leaf or muscatel  
(Photo by H. B. Lovell)

mon tree in low, wet land in that state.

At Pine Bluffs we stopped at the warehouse of J. E. Gooch just as a truckload of supers was arriving from an apiary. The truck and the warehouse were enveloped by a cloud of bees, "hitchhikers" he called them. They seemed intent on salvaging some of their lost stores and made no attempt to sting any of us. Gooch knew a great deal about local honeys and said he could identify them all by taste. I tried him with willow honey and he identified it correctly and described the flavor as "weedy." One of his men came by and reported that one yard of bees was working muscatel, a vine that looked a little like wild grape. From Mr. Gooch we obtained some wonderfully white and clear vetch honey in quart jars, one with and one without a chunk of comb. Hairy vetch makes an extra water-white honey, the whitest honey in the South. It has a very mild flavor, so mild in fact that many packers feel it should be blended with a stronger honey to give it more character. Gooch told us that he

purchased a great deal of "vine honey," which he sold for commercial uses.

We drove through miles of rice fields in Eastern Arkansas, where thousands of acres have been flooded and terraced. Here there were patches of mock bishop's weed (*Ptilimnium capillaceum*) which Raymond Fischer had told us yielded some honey, "a super or two some years." We next visited the home of C. Kenneth of Marked Tree in northeastern Arkansas. Around his country home a number of honey plants were growing including climbing dogbane, pepper vine and a vine which was being worked heavily by bees, which proved to be heartleaf (*Ampelopsis cordata*). This fitted the description of muscatel as given to us by several beekeepers and was the only vine attractive to bees that did fit the description. Although Mr. Smith was not at home, he wrote us later that he obtained most of his honey from buckwheat vine, vetch, willow, tupelo, cotton, soybeans, and aster. One of his biggest problems is to remove the light-colored spring honey before pepper vine comes into bloom, since it produces such a dark red honey that it spoils the quality of the earlier honey if not kept separate.

Harvey B. and Ethel W. Lovell, Louisville, Kentucky.

## Trefoil in Agriculture

The Farm Journal for December had a catchy article on birdsfoot trefoil by William Gilman. Formerly it was assumed that two years were necessary to get results from trefoil, but many raisers in New England and other eastern states are getting stands in a single year . . . Some are getting two cuttings a year from their meadows, and for pastures it appears unexcelled.

## Frankfurters and Honey . . .

A Texas meat firm began flavoring their frankfurters with honey and butter and sales tripled in a short time. (B Notes, Col.)





## Learn and Mix in '56

### Honey for Breakfast Week, April 1-7

The American Honey Institute has selected the week of April 1-7 as "Honey for Breakfast Week." Twice a year we have this big chance to get behind the publicity concentration to call the virtues of our honey to our buying public. The Institute is prepared to send you all kinds of selling helps for this week. Write American Honey Institute, Madison, Wisconsin. Remember, too, that National Honey Week is scheduled for October 28-31, continuing Nov. 1-3.

### Pennsylvania Short Courses Queen Rearing—June 18-20

#### General Management—August 13-17

The dates for the short course on Queen Rearing and the short course on General Management to be given at the Pennsylvania State University this summer are, for the course on Queen Rearing, June 18, 19, 20, and for the course on General Management, August 13 to 17, inclusive. For particulars write to D. R. McClay, Dir. Short Courses, 203 Dairy Bldg. University Park, Pa.

### Sixteenth International Beekeeping Congress—Vienna, August 12-18

At the last Congress in Copenhagen in 1954 the Österreichischer Imkerbund was entrusted with the organization of the XVIth International Beekeeping Congress.

Austria — a country whose apiculture has been famous for many years — will undertake all efforts to make this XVIth International Beekeeping Congress a further contribution towards understanding and friendship between all men in general and beekeepers in particular; for only if all of us set ourselves to collaborating in a spirit of good comradeship can our endeavours be fruitful in achieving what every one of us desires.

This year's Congress will be held under the auspices of the Austrian Federal Chancellor, DDr. h. c., Ing. Julius Raab, the man who brought freedom back to Austria. The highest public authorities in Austria are tak-

ing an active part in the preparation and organization of this Congress.

Both scientists and practical beekeepers are to be given the opportunity to exchange experiences and to learn of the most recent advances in the field of apiculture in the widest sense of the word through lectures, discussions, field trips as well as an exhibition, and thus to enrich their knowledge and to broaden and deepen personal relations among themselves. The Congress will be held in the Grosser Festaal of the Neues Wiener Rathaus, the City Hall of Vienna, where loudspeakers and tape recorders will be installed for the occasion.

The forthcoming meeting will be the first International Beekeeping Congress to make use of simultaneous interpretation equipment. This means that every participant will be enabled to immediately hear every speaker in one of the official languages (English, French, German), according to choice. Participants can thus draw the maximum benefit from the lectures in what, according to the present stand of our technical knowledge, is the shortest possible time.

In addition to the highly varied and entertaining general program, there will be five days of lecture programs with lecturers from Austria, Great Britain, United States, France, Western Germany, and Russia. Further details will be given later.

### North Carolina State, Mar. 13, Aberdeen

The North Carolina State Beekeepers Association will hold its annual spring meeting on March 13, in Aberdeen, N. C. For further information, contact J. T. Conner, Jr., Taylor Chemical Co., Aberdeen, N. C. All persons interested in beekeeping are welcome.

Mrs. A. L. McLean, Sec.-Treas.

### Illinois Association Sets Annual Meet Nov. 3-4

The Illinois State Beekeepers Convention date for 1956 has been set on the first Saturday and Sunday in the month of November being the

3-4. The Sunday date was set after much discussion over small convention attendance as compared with membership and the reasons members failed to attend the convention. The question was gone over from every angle and it was finally decided that the greatest number of folks keeping bees in Illinois depend on some other occupation for their main livelihood and bees are secondary. The most of these folks cannot take off Friday and Saturday to attend the convention. Thus a Sunday date is being tried. Illinois has 11 local beekeepers associations affiliated with the state body.—(from Kentucky Bee Line)

### Midwestern (Missouri), March 11, Kansas City

The Midwestern Association will meet at 812 Westport Road, Kansas City, March 11 at 2 p. m. Program will be "Checking Late Winter Stores and Spring Feeding." Door prizes and refreshments.

Mrs. William Brite, Sec.

### Worcester County (Mass.) March 17, Worcester

The next meeting of the Worcester County Association will be on Sat., March 17, at the Worcester Natural History Museum, 21 Cedar St. in Worcester. We wish to extend an invitation to all those interested in beekeeping. There is no fee. Our speaker is Dr. Frank R. Shaw, of the University of Massachusetts, with the topic, "Suggestions to Improve the Quality of Honey" and "Choosing a Good Honey Label." A potluck supper will be served at 6:30.

C. W. Rozenasm, Pub. Chairman.

### Clemson (S.C.) Area Education Center Programs for March

Tuesday, Mar. 7—How Bees Make Honey—D. Dunavan, 7:30-8:20 P. M.

Tuesday, Mar. 20—Problems of the Beekeeper—W. H. Purser, 7:30-8:20 P. M.

Tuesday, Mar. 27—Demonstration of Beekeeping Equipment and Hive Manipulation—David Dunavan and W. H. Purser, College Apiary.



# Annual Course in Beekeeping at the Worcester (Mass.) Natural History Museum

Each class starts at the Museum, 21 Cedar St., at 8 P.M.

March 3 Russell Mossman—Kinds of bees used in this country and their characteristics. Different ways to obtain bees in packages, nuclei, in hive bodies, swarms, or established colonies. How many colonies to a location.

March 10 George More—General management of the apiary from the arrival of the package through the summer. Feeding, superseding and laying workers. Necessity of swarm control. Kinds of bee pasture and ways of moving colonies. Bee diseases, inspection and enemies of bees.

March 17 To be announced.—Anatomy of the honey bee (illustrated). How nectar is changed to honey, and its composition. How wax is produced and used. Royal jelly, its composition, how produced and used.

March 24 Philip Pike—Production of extracted honey. Equipment to use and handling of the bees. Kinds and extent of bee pastures. Sources of nectar (plants, trees and shrubs) and the effect of the weather on the honeyflow.

Westchester County (N.Y.),  
March 18, New Rochelle

The Westchester County Beekeepers' Association will hold its next meeting at the Odd Fellows Hall, 20 Lockwood Ave., New Rochelle, N. Y., on Sunday, March 18, at 2:30 P. M., sharp.

At this time, many subjects of interest will be discussed, such as preparing the hives and the feeding of the bees, diseases and their control, pollination, swarm control, and others. We urge all Beekeepers and Farmers interested in pollination of their crops, make a special effort to attend.

Refreshments will be served at the close of the meeting.

Mrs. Alfred Roth, Publicity.

Middlesex County (Mass.),  
March 31, Waltham

The next meeting of the Middlesex County Beekeepers' Association (Mass.) will be held on Saturday, March 31, 1956, at the Waltham Field Station. A potluck supper will be held at 6:30 P. M., followed by a business meeting.

At our February meeting, we were most fortunate in having as a speaker Mr. Caswell, of Middleboro, who spoke to us on his experiences in beekeeping.

We also had a report on the Amer-

ican Beekeeping Federation meeting held in January in Biloxi, Mississippi, from our member Mr. Alfred Baptiste, who attended the meeting.

L. C. Proctor, Secretary

Berks County (Penn.), March 8,  
West Leesport

The Berks County Association will meet March 8, 8 P. M., at the Ontelaunee High School in West Leesport, Pa. This is about nine miles north of Reading on Highway 122. The film, "Bees for Hire," will be shown. W. W. Clarke, Jr. will give a talk on bees. There will be a drawing for three door prizes. We extend a warm welcome to all who would like to come.

Samuel B. Althouse, Sec.-Treas.

Maine Association, Orono, April 3

The annual meeting of the Maine State Association of Beekeepers will be held in conjunction with "Farm and Home Week" at the University of Maine, Orono, Tuesday, April 3.

Program, Dr. Charles O. Dirks, Presiding.

9:00 A. M.—Handling of Package Bees, Harold Swan; Insecticides in Relation to Pollinating Insects, Leo Boulanger.

10:00 A. M.—The Hobby Beekeeper and His Problems, William K. Dav-

is, Publicity Director of the Eastern Apicultural Society, Providence, R. I.

11:00 A. M.—Movies on Bees, When Bee Meets Bee, British Information Service, Modern Bee Breeding.

Noon—Beekeepers Luncheon at Balentine Hall—Adjourn to South Lounge after eating.

1:30 P. M.—Annual Meeting and Election of Officers of the Maine State Association of Beekeepers. President Walter Holman, Presiding.

C. A. Stanhope, Secy. & Treas.

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# Questions

## Hive Dimension

Can you give me the exact dimensions of the Modified Dadant hive and also the Farrar shallow hive?—Herman Welter, Cascade, Iowa.

The outside dimensions of the Modified Dadant hive are: width 18½ inches; depth or length 20 inches; height 11-9/16 inches. The inside dimensions are: width 16-15/16 inches; depth 18-3/8 inches; height 11-9/16 inches.

The Farrar hive is the same length as the Modified Dadant and is square and so has a width and length of 20 inches outside and 18¾ inches inside. The height is the same as the Modified Dadant shallow super, 6¾ inches.

## Orchard Rental

I am asked to take over a 60 acre orchard with four varieties of apples, red and yellow Delicious, Jonathans and Winesaps. Some are harder to get fruit to set than others. Can you advise me as to the rental charge per colony and how many colonies per acre? This is a ten year old orchard two miles from my apiary.—A. J. Ver Brugge, East Moline, Ill.

If the varieties you mention are not planted in blocks but in rows you should get good pollination and set. Golden Delicious and Jonathan are two of the best varieties for cross pollination. It is customary to use one good colony to the acre, one with six or more combs of brood. Some think an average of 1½ colonies to the acre is more efficient. Recent research has shown that it is better to place the colonies in the orchard in groups of about five rather than to scatter them singly. The fee varies from \$5 to \$10 per colony. Figure what it costs you to move, adding something for profit, and make your own decision. One researcher says not to move in until there is some bloom to attract the bees. You also should seek the cooperation of the orchardist so he won't apply insecticides injurious to bees while they are in the orchard.

## Races of Bees

I have read comparisons of Carniolan bees to Caucasian and Italian. Carniolans are praised except for comb honey production. But it is also stated that there haven't been pure bees of this race in this country since 1941. If "pure Carniolans"

are not available today how do what we have compare with them? Are they more inclined to swarm than the Italians?

—Paul Steffen, Wabash, Ind.

At one time Iowa State College made a five year trial of Italians, Caucasians, and Carniolans and it was then concluded that the Carniolan had more of the characteristics desired by beekeepers than the other races. The original Carniolan bees came from a province (Car-

niola) which is now a portion of Yugoslavia. There were a number of different types, those frequenting the high mountains as well as those in the plains. The mountain bees were more inclined to swarm while those in the plains were more like the Italians in this respect. Pure Carniolans are not now available here so we do not know what mixture you would get. We hope someday importations will be allowed because observations have shown them to be a superior bee.



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## Editorial . . .

### The Industry Merits Price Support

Mr. A. A. Greenwood, who is in charge of administering the honey price support operations, sent out a letter on February 10, 1956, to honey buyers and dealers, including exporters, acquainting them with the availability of honey still under loan and purchase agreement. He reminded them that the maturity date for honey under loan is March 31, and asked their cooperation in moving this honey to market rather than to the Commodity Credit Corporation.

It is especially interesting to point out that there were only 37 loans made on honey during the 1955 season, totalling 1,863,033 pounds, and 7 purchase agreements, totalling 173,450 pounds. This represents about 0.8 of 1 per cent of the 1955 crop of 253 million pounds. In the 1954 program there were 76 loans, totalling 1,465,224 pounds, and 7 purchase agreements, totalling 755,250 pounds. In comparison, the total amount of honey under loan and purchase agreement in the 1953 program was 3,649,034 pounds, and in the 1952 program was 13,782,963 pounds.

The purpose of Mr. Greenwood's letter was to seek the cooperation of honey buyers to the end that little or NO honey moves to the Government. He stated that the domestic demand for honey is good and inquiries for honey for export are reported to be increasing, that the small quantity of honey still under loan and purchase agreement should therefore move to market without difficulty.

So the purpose of this editorial is a plea to honey producers who still have honey under loan and purchase agreement also to cooperate. The honey market is firm; good prices are being offered by honey buyers. Do your part to see that any honey you may have under loan or purchase agreement moves through normal market channels before March 31. By so doing the bee and honey industry can again point to a perfect price support program.

What is a perfect price support program? We believe that such a program is one in which the price of honey is stabilized at a level which ensures a fair profit for the producer, yet allows honey to move through normal channels of trade to the consumer at a price he or she is able and willing to pay. Thus, a fair and happy situation for all concerned is created. There is no surplus; the Government is pleased because it doesn't have to buy and move the honey under the program; and a healthy, normal and proper market is maintained.

The bee and honey industry, at least during the past 2 years, has experienced such a situation. Congress granted us price support to help maintain beekeeping on a profitable basis because of its importance to agriculture through the pollination of crops. But the beekeeping industry has not leaned on the Government; it has done its part to see that honey went to the consumer and not to the Government. By so doing the beekeeping industry merits the continuation of price support at an improved level.

### The Master Race

The American Bee Journal has just received an English translation of a 366-page Russian book by I. Khalifman. Its title is "Bees," a book on the biology of the bee colony and the achievements of bee science. This book received the Stalin Prize of 1951. Perhaps this is why.

As Mr. Khalifman ends his book, he is telling about collective farming of fields of grasses forming an endless carpet and bees sent there by man to collect nectar from the legumes and pollinate them. We quote his concluding paragraph.

"All this has been done by the hands and minds of the Soviet people, people that were the first in the world to become masters of their own destiny and are the first to become masters of Nature."



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**ITALIANS**—Packages, Queens. Martz, Rt. A2, Box 846, Vacaville, Calif.

**CARNIOLAN — CAUCASIAN**—2-lb. package, \$3.50; 3-lb. package, \$4.50 each. Queens, \$1.00 each; \$35.00 per 100. Tillery Bros., Greenville, Ala.

**GOOD PACKAGE BEES and QUEENS** for 1956—Young three-banded Italians. Gentle and good honey gatherers. New cages, more than full weight of bees. Treated for the prevention of Nosema. No F.B. 1200 full colonies and 1500 nuclei to draw from. Years of experience shipping to many parts of the world. Shipping season opens about April 5. 2-lb. pkgs. with queens, \$4.00 each; 3-lb. pkgs. with queens, \$5.00 each. 5% discount on orders totaling \$100.00 or more; 10% discount on \$200.00 or more. Select young laying queens, \$1.35 each; 25 to 99, \$1.25 each; 100 or more, \$1.15 each. Small orders can be sent by parcel post. Large orders go best by express. H. C. Short, Fitzpatrick, Ala.

**SEND OR BRING CAGES**—Will supply bees for 75¢ lb. Will sell 100 to 200 ten-frame colonies on good till tulipale galberry locations. A. V. Dowling, Valdosta, Ga.

**BRIGHT ITALIANS**—3-lb. with queen, \$4.75; 2-lbs. with queen, \$4.00. F.O.B. Aberdeen. Queens, \$1.25 postpaid. Health certificate and live delivery guaranteed. Sheppard's Apiaries, Aberdeen, N. C.

**GOLDEN ITALIAN QUEENS**—Fumidil-B-fed. Bees are very large and gentle, and heavy honey producers. Price \$1.00 each. Guaranteed live arrival and health certificate. Allen H. Gauthier, Hamburg, La.

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**ITALIAN QUEENS** \$1.00 each. Shipment starts May 1st. Cleve Sprouse, Jr., Rt. 3, Woodruff, S. C.

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## FOR SALE

**FOR SALE**—8-frame Root equipment for 700 colony apiary. Write for details. E. H. Wadleigh, Monte Vista, Colo.

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26 acres of number one soil, also two houses, just outside city limits. Could be sub-divided. Also 35 colonies of bees and equipment enough for about that many more. Sam Moore, 717 S. Pine River, Ithaca, Mich.

40 colonies Italian bees, supplies and supers for about 75 colonies, with good drawn combs. No disease. All in excellent condition. John A. Larson, North Road, Taylors Falls, Minn.

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**TEN COLONIES** at \$7.50 each. Bert H. Renner, 303 W. Kirkham, Litchfield, Ill.

**NEW 200-pound test shipping cartons** for five-gallon cans. 12¢ each, f.o.b. Oakland, Nebraska. R. W. Barnes & Son.

7 Modified Dadant hives of bees. Qualified inspector's certificate furnished. L. R. Harshman, Sullivan, Illinois.

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**FOR SALE**—Complete section honey outfit with 13 colonies in 10-frame one-story hives, 25 Kiln supers. All recent equipment. Write for prices. Rev. Harry A. Shewhart, Rt. 2, Sparland, Ill.

**OVERSTOCKED** 500 brand new 10-frame bodies and frames in factory cartons. Will sell at a sacrifice. Write for price, stating quantity desired. Schultz Honey Farms, Ripon, Wisconsin.

**OVER 100 Dadant**, about 50 standard colonies, heavy. Description and price on request. Martin Triplett, Triplett, Mo.

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**WANTED**—Any quantity amber honey Russell Griggs, Hancock, Iowa.

**WANTED**—Honey and beeswax. State what you have and price. Roscoe F. Wixson Dundee, N. Y.

**WE ARE PAYING** top prices on beeswax and honey shipped to one of our plants. Sioux Honey Assn., Lima, Ohio; Rogers Texas; Anaheim, Calif.; Tacoma, Wash.; and Sioux City, Iowa.

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Improved designs, embodying color, balance, simplicity, and distinction. Please send for free samples & prices.

**C. W. AEPPLER COMPANY**

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**WRITE FOR SHIPPING TAGS** and current quotations on rendered beeswax. Any amount from one pound up bought. If you have 25 pounds or more, save 25% by letting us work it into foundation for you. Walter T. Kelley Co., Clarkston, Ky.

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**WHITE CLOVER HONEY** in sixties. Ralph Gamber, 910 State, Lancaster, Pa.

**CLOVER HONEY** in sixties. Thos. Atkinson, Rt. 5, So. Omaha, Nebr.

**WHITE SWEET CLOVER honey** in new 60's, 1000 cans, running extra white to white. Parent Apiaries, Fertile, Minn.

**MICHIGAN'S FINEST WHITE CLOVER honey**. New sixties. Fully ripened. No disease. 16¢ and up. Sample, 20¢. John McColl, Tecumseh, Michigan.

**FOR SALE**—two truck loads of white clover honey in new sixty pound cans. Baxter Honey Farm, Blair, Nebraska.

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**WANTED**—Man to help with bee farm. Edward Zajlak, 410 LaBelle St., Boscobel, Wis.

**WANTED**—Experienced beekeeper. Year round work or seasonal. Possible share basis to right man. Joe Holt, 915 Winslow, Richland, Wash.

**HELP WANTED**—Experienced beekeeper. Preferably with some experience in queen rearing. To produce queen bees on Pelee Island. From May 15th to September 15th. Furnished cottage provided. Send application or enquiry to: Professor G. F. Townsend, Apiculture Department, Ontario Agricultural College, Guelph, Ontario, Canada.

**WANTED**—A good reliable man for a few months, or a permanent position for the right man. Weaver Apiaries, Navasota, Texas.

**MAKE \$135.00 AND UP every week.** Full or part time. Take orders for America's largest selling, nationally advertised Liquid Fertilizer since 1946. No investment. Excellent opportunity for expansion. Write "Na-Churs" Plant Food Co., 641 Monroe Street, Marion, Ohio.

**WANTED**—Reliable man for 1956 queen and package season. Howard Weaver Navasota, Texas.

**HELP WANTED**—One or two experienced beekeepers during the package shipping season, late March through April, 1956. You can have cash wages or package bees and/or queens, as you prefer. Write, giving your full experience, age and capability. H. C. Short, Fitzpatrick, Ala.

**WANTED**—Two experienced beekeepers, year round work or seasonal. Reference please. Jim's Valley Apiaries, Sunnyside Wash.

**WANTED**—An ambitious, physically fit good truck driving young man for migratory bee work. Year round job and some bees to run on shares. Give quali-

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**WANTED**—Experienced beekeeper. Can use college student thru three summer months, who would like to take over 1,000 colony outfit in N. Dak. later. No drinker. Write Gilbertson Apiaries, Kindred, N. Dak.

**WANTED**—Experienced man for honey production in Minnesota. Could start season in my Louisiana apiary. Lionel Hopkins, Maringouin, La.

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**WANTED**—Large outfit of bees, 200 to 2000 colonies, in the Midwest. Ten-frame standard, extra supers preferred. No honey house, truck or equipment necessary. Box 224, c/o American Bee Journal.

**TO HAUL** package bees. Have room for 400 more on load to Minnesota about May first. Load capacity 1400. All of April open. Complete insurance coverage. Over 19 years in migratory beekeeping, reliable, fully experienced. Write me now. Reasonable rates. Eugene Danker, Roosevelt, Minnesota.

**BEES and EQUIPMENT** located in Midwest. Ray Johnson, Princeville, Ill.

**WILL LEASE** 250 to 400 colonies of my outfit here. Ohmert Bee Farms, Dubuque, Iowa.

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**WANTED**—10-frame, dovetailed hive bodies. With or without combs. Stan Trescott, Conesus, New York.

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That stand test for honey gatherers; Gentle; Prolific.

Queens bred from hives making 300 lbs. and over of Honey

Fumagillin fed grafting and queen yards, **HEALTH CERTIFICATE** with each shipment.

All packages F.O.B. Jesup.

QUANTITY	1-24	25-99	100 up
2-lb. pkg. w/q	\$3.75	\$3.40	\$3.00
3-lb. pkg. w/q	4.75	4.50	4.00
4-lb. pkg. w/q	5.75	5.50	5.00
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QUEENS mated and laying	1.25	1.15	1.00
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Prompt, live delivery guaranteed.			
Place orders now. Early orders have priority.			

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2-lb. with queen	\$3.00
3-lb. with queen	3.75
4-lb. with queen	4.50

Extra queens — \$1.00 each.

Book Early and Be Safe.

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**WANTED**—One 50-frame and one 30-frame Woodman extractor. Also Brand wax melter. Dakota Apiaries, South Heart, No. Dakota.

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Shipped Anywhere in United States and Canada

1956 prices F.O.B. Hampton, S. C.	Queens (each)	2-lb. & Queen	3-lb. & Queen	4-lb. & Queen	5-lb. & Queen
1 - 24 pkgs.	\$1.15	\$3.75	\$4.75	\$5.75	\$6.75
25 - 99 pkgs.	1.05	3.50	4.50	5.50	6.50
100 up pkgs.	1.00	3.25	4.25	5.25	6.25

(For Queenless Packages deduct price of Queen)

Guaranteed safe arrival.

Health certificate with each shipment.

Queens clipped and painted if desired.

Shipper rated in Dun & Bradstreet.

TERMS: One-third with order, balance 10 days before shipment

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**HAMPTON, SOUTH CAROLINA**

## BETTER BRED QUEENS — Three Banded Italians

	Queens	2 lb. w/q	3 lb. w/q
1 to 24	\$1.35	\$4.00	\$5.00
25 up	1.15	3.50	4.50

Please book orders as early as possible to get the best shipping dates.

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WE ARE CONVINCED that Starline queens are the best all around buy. Dadant Starlines are the Queen Bee equivalent of Atomic energy. The scientific breeding program of SUNKIST-DADANT STARLINES offer you more assurance of satisfaction than queens bred without this background.

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25-99	1.50	4.00	5.00	6.00
100-up	1.40	3.75	4.75	5.75

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KELLEY—"The Bee Man"

Three-banded Italian bees and KELLEYS ISLAND improved hybrid queens direct from our own Bee farm. Shipments start April 1st — express or parcel post shipment. Thousands of extra queens.

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25-99	1.15	3.25	4.25
100 and up	1.05	3.00	4.00

**WALTER T. KELLEY CO., Clarkson, Kentucky**

### YELLOW ITALIAN BEES and QUEENS

2 lb. package with queen \$3.00; 3 lb. pkg.—\$4.00. Queens 1 to 50—\$1.00 ea. 51 to 99—95c ea.; 100 and up—90c ea. Air Mail. We guarantee health certificate and live arrival with each shipment.

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Share with others in the present favorable honey prices — Meet good prices with TOP PRODUCTION — A good way to accomplish this, is to stock with NEW IMPROVED DADANT STARLINE HYBRIDS and GARON'S THREE-BANDED ITALIAN Package Bees & Queens.

QUEENS			Package Bees With Queens		
	Italians	Starlines	2-lbs.	3-lbs.	4-lbs.
1-24	\$1.25	\$1.60	\$3.65	\$4.60	\$5.55
25-99	1.20	1.50	3.55	4.50	5.45
100-up	1.15	1.40	3.45	4.40	5.35

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from Fumidil-B fed grafting yards and  
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QUEENS.....\$1.00 each  
2 lbs. of bees with queen \$3.00 each.  
Live arrival and health  
certificate guaranteed.

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Cut Comb and Extracted  
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No. 1 Grade  
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\$1.10



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Our 1956 Prices

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2-lb. pkg. with queen	\$4.00	\$3.75	\$3.50
3-lb. pkg. with queen	5.00	4.75	4.50
Queens	1.35	1.25	1.15

Book Early and be assured of your favorite shipping dates.

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## Three Band and Pure Three Way D.R. Italian Package Bees and Queens.

We ship Pure Worker Bees by mail, express or truck. We  
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Each with a Young Laying Queen

Each	2-Pound	3-Pound	4-Pound	5-Pound
1-11	\$4.00	\$5.00	\$6.00	\$7.00
12 to 29	3.80	4.75	5.70	6.65
30 or more	3.60	4.50	5.40	6.30

Untested Queens, each \$1.35. Tested Queens, each \$2.00

If Queenless Bees are wanted, deduct \$1.35 from the package price.

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## THREE BANDED ITALIAN BEES AND QUEENS

	QUEENS	2 lb. w/q.	3 lb. w/q.
1-24	\$1.25	\$3.50	\$4.50
25-99	1.15	3.25	4.25
100-up	1.00	3.00	4.00

Queenless Packages deduct price of queen. — Live delivery guaranteed — No disease

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Remember also, when you need woodenware, that **Sioux Honey** handles Leahy products. We have a fine stock on hand at all times and if you desire a special style or size we can have it made up for you. Leahy woodenware is a high quality product at a low price.

A recently completed building adjoining our plant in **Sioux City**, equipped with most modern facilities, provides a rendering service second to none in the United States. Our **Rogers, Texas** plant also has a rendering plant to serve producers in that area. Write us for a schedule of rendering charges.

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## Package Bees – "GULF BREEZE" – Italian Queens

Manitoba beekeeper reports many colonies producing 400 pounds, Illinois reports record production of premium comb honey and all with "GULF BREEZE" stock. Book your order NOW with us at the following prices:

QUANTITY	QUEENS	2-lb. pkg. w/q.	3-lb. pkg. w/q.	4-lb. pkg. w/q.
1- 9 .....	\$1.35	\$4.00	\$5.00	\$6.00
10-49 .....	1.25	3.75	4.75	5.75
50-up .....	1.15	3.50	4.50	5.50

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**A. G. Woodman Co.** (Send for catalog—350 Listings) **Grand Rapids 4, Mich.**



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**FOR SALE: MACK'S Queen Mating Nuclei.** Freshly painted, complete with four 4" by 5" frames and feeder. Fit frames with comb or foundation; stock with about 800 bees and you are ready to save those fine large swarm cells. Guaranteed disease free. Our 40 years' experience has proved these the Best Nuclei Obtainable, and with reasonable care will last as long as you keep bees.

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Combless Packages and Queens.  
Three-banded Italians only.

Write for 1956 prices and REMEMBER—  
THRIFTY BEES ARE GUARANTEED  
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Package Bees and Queens  
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Get increased honey crops from your colonies. Requeen with our PRODUCTION BRED three-banded Italian Queens. Bred for production, gentleness, and beauty, our queens are sure to please the hobby beekeeper as well as the commercial man. Give them a trial.

Prices to June 1st.

All Queens shipped prepaid  
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# Crops and Market

by **M. G. Dadant**

**Condition of Bees**

Generally, throughout the United States the condition of bees as of February 10 seems to be quite satisfactory. In the northern tier of states and the Canadian provinces, prolonged winter without a flight may have its effect upon the amount of loss. In other sections, colonies have had satisfactory flights. There are some reports of shortage of stores, and beekeepers will have to be careful in anticipating any shortages, particularly when brood rearing begins in earnest.

In the Southeast, bees seem to be building up fairly satisfactory although cold weather during early February has not caused the plants to come forward as they should to assure the colonies building up early, particularly for the package season.

There have been losses in northern California from floods. The estimates of some are as high as ten thousand colonies and others as low as six thousand colonies. One reporter suggested a 10% colony loss from all causes in California, mostly from the flood. However, these losses will no doubt be made up without too much difficulty.

**Moisture**

In this category we have seen within 30 days a complete turn about in the attitude of the reporters. The conditions in Canadian provinces and northern states of U. S. A., including New England and New York, which were satisfactory a month ago now are still more satisfactory, due to considerable amounts of snow. In central areas and extending throughout the whole South, the Central West, and the intermountain sections there have been either copious rains or snows which have improved conditions very generally. California, especially southern California, should be a mass of bloom this year whereas a month ago prospects were for an extremely dry and unfavorable season. Northern areas, of course, have had the heavy rains incident to the flood.

By the above we do not mean that there is no more danger of drought, because moisture conditions have not been improved in all incidents.

In the southern plains territory,

from Oklahoma northward, we have still some complaints of drought although the conditions have been improved very greatly by late rains and snows.

In the Southwest, particularly Louisiana, Texas, and extending into New Mexico and Arizona, marvelous rains have been accompanied by cool weather, thus assuring the good condition of the colonies and at the same time a good prospect for developments of the honey plants.

On the whole, conditions are far improved over a month ago and an improvement over 1955 generally with prospects of an old time crop in California.

**Honey Plants**

Naturally the earlier dry conditions have not been conducive to best prospects of honey plants and here we hear the most complaint. In fact many are withholding any judgment as to the condition of plants until the snows have disappeared and it can be determined whether there has been much heaving of clover and just how much the plants were hurt by earlier dry conditions.

Plants are recovering very nicely in the Southeast. In Texas and west, no doubt, plants were hurt much by earlier drought but improvement is quite rapid and they may soon approach normal conditions.

Intermountain territories seem quite satisfactory and as stated above the desert sections of California now are beginning to burst forth "in all glory," owing to the copious rains.

**Honey Cleanup**

Practically in every instance, the report was that honey would clean up quite satisfactorily before the new crop. Some packers are well stocked with honey while others are having to buy to continue their usual packaging processes.

Such honey as is held on the part of the beekeepers, generally, is held by those who are wanting to get the very top in prices. There seems to be some desire to avoid a price as high as 16¢ per pound on the part of buyers, although we do learn of some buyers contracting at 15¢ per pound in cartons either for domestic or for foreign export. On the whole, prices are generally about 14¢ per pound for good white honey with the tendency not to sell at that price on the part of those who have held until this time.

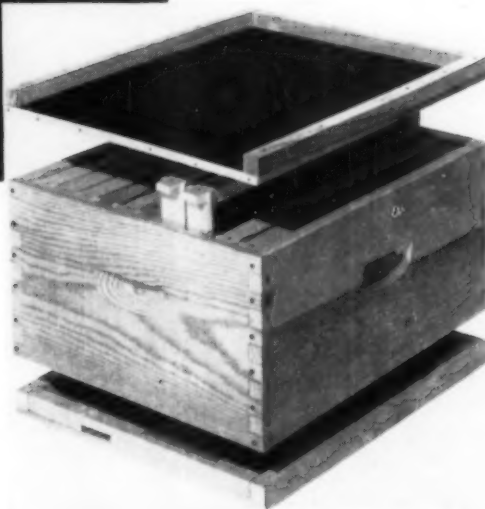
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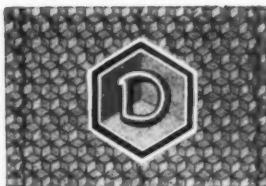
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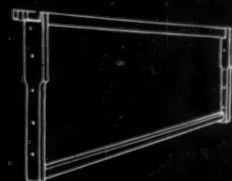
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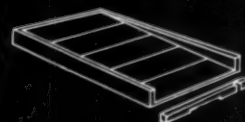
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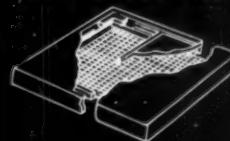
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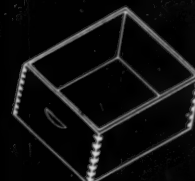
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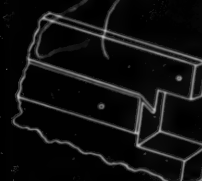
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